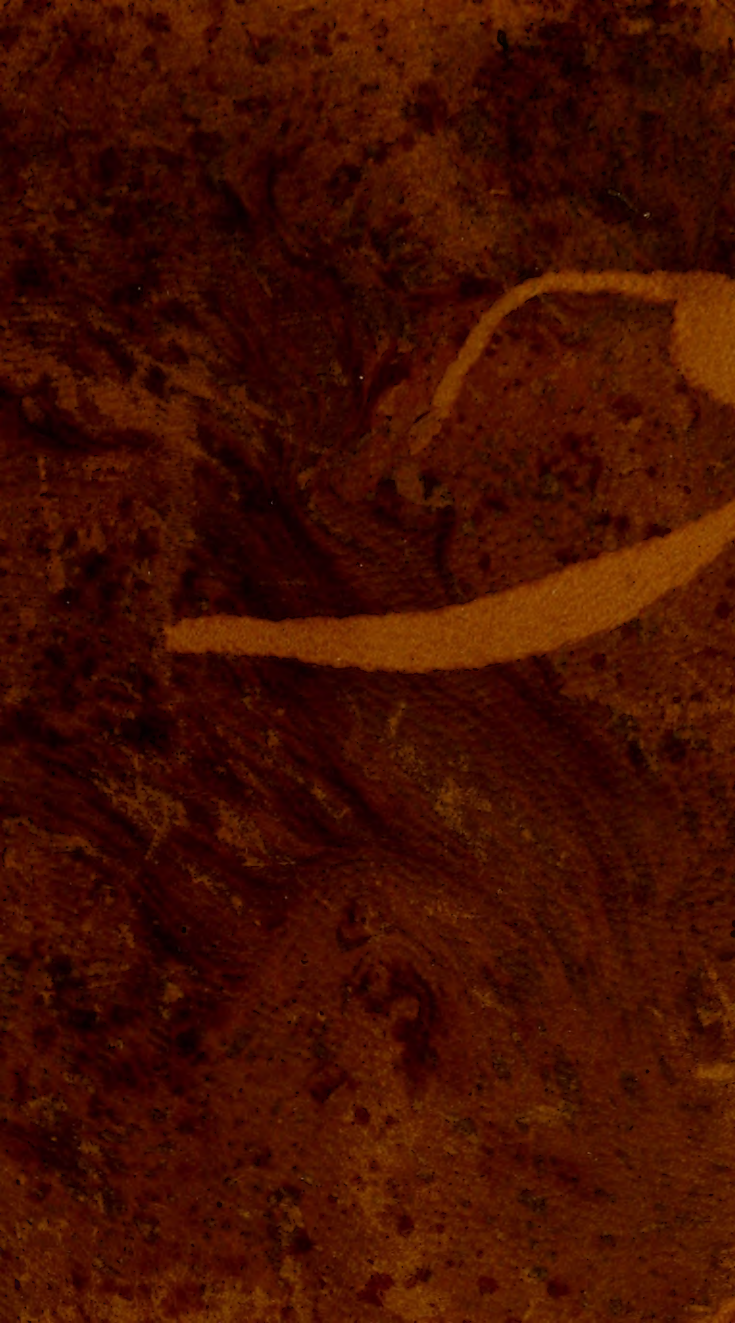

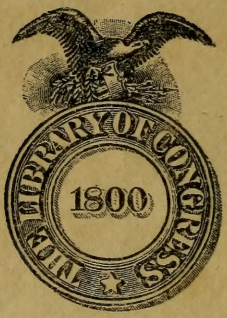
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ORCHARD,	GREEN HOUSE,
NURSERY,	HOT HOUSE,
SHRUBBERY,	and
PLEASURE GROUND,	GRAPE VINES.

FOR EVERY MONTH IN THE YEAR.

BY AN OLD GARDENER.

BALTIMORE:

PUBLISHED BY FIELDING LUCAS, JR.

1822.

SB453
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DISTRICT OF MARYLAND, ss.

BE IT REMEMBERED, That on this Thirtieth day of March, in the Forty-third year of the Independence of the United States of America, Fielding Lucas, Jun. of the said District, hath deposited in this office the title of a Book, the right whereof he claims as Proprietor; in the words following, to wit:—

"The Practical American Gardener; exhibiting the time for every kind of work in the Kitchen Garden, Fruit Garden, Orchard, Nursery, Shrubbery, Pleasure Ground, Flower Garden, Hop Yard, Green House, Hot House and Grape Vines, for every month in the Year. By an Old Gardener."

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Clerk of the District of Maryland.

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Henry Gunn's

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When it is required to ascertain the particular mode of culture of any plant whatever, refer to the catalogue of the department, to which that plant belongs, and the method of cultivation, propagation, &c can be readily known, whether of the first, second, third, fourth class: as

First, woody: second, herbaceous: third, bulbous; fourth, succulent.

As nature has confined plants of the same temperature and constitution, to the same mode of culture, some of each kind are given, under the different heads, and by the reference to these, the information will be sufficient for the culture, propagation, &c. of the others.

TABLE I. *Of Kitchen Garden Esculent Plants, &c.*

1 *Artichoke*, 3 kinds
2 *Artichoke Jerusalem*
3 *Asparagus*, 4 kinds
4 *Bean, Windsor*, 14 kinds
5 *Kidney*, bunch, 10 kinds
6 *Climbing*, many varieties
Carolina & Lima
7 *Beet*, 6 kinds
8 *Borage*
9 *Borecole*, 5 kinds
10 *Broccoli*, 4 kinds
11 *Cabbage*, 17 kinds
12 *Cabbage*, Turnep, 3 kinds
13 *Calabash*, or bottle gourd
14 *Cardoon*
15 *Carrot*, 3 kinds
16 *Cauliflower*
17 *Celery*, 4 kinds
18 *Celeriac*, or turnip rooted Celery
19 *Chervil*
20 *Chives*
21 *Coriander*
22 *Corn*, Indian
23 *Corn Sallad*
24 *Cress*, or Peppergrass, 3 kinds
25 *Cress Winter*
26 *Cress Water*
27 *Cucumber*, round prickly
28 *Egg plant*, 2 kinds
29 *Endive*, 3 kinds
30 *Finochio*
31 *Garlick*
32 *Ground nut*
33 *Leek*, 2 kinds
34 *Lettuce*, or Sallad 20 kinds
35 *Melon Musk*, 14 kinds
36 *Melon Water*, 5 kinds
37 *Mushroom*
38 *Mustard*, white and black
39 *Nasturtium*
40 *Onion*, 8 kinds
41 *Orach*, or English Lambs-quarter
42 *Parcley*, 3 kinds
43 *Parsnip*
44 *Patience Dock*
45 *Pea*, Garden, 25 kinds
46 *Pepper Cayenne*, many varieties
47 *Potatoe Common*
48 *Potatoe Sweet*
49 *Pumpkin*, many varieties
50 *Radish*, 11 or 12 kinds
51 *Radish Horse*
52 *Rampion*
53 *Rape*
54 *Rocambole*
55 *Salsafy*
56 *Scorzonera*
57 *Sea Kale*, or Crambe Maritima
58 *Shallot*
59 *Skirret*
60 *Sorrel*
61 *Spinach*, 3 kinds
62 *Squash*, many varieties
63 *Tomatas*
64 *Turnip*, 10 kinds

TABLE II. *Of Aromatick, Pot, and Sweet Herbs.*

1 *Anise*
2 *Sweet Basil*
3 *Carraway*
4 *Camomile*
5 *Celery*
6 *Coriander*
7 *Dill*
8 *Fennel*
9 *Hyssop*
10 *Lavender*
11 *Lovage*
12 *Marigold*, Pot
13 *Marjoram Sweet, &c.*
14 *Mint, Spear*
Pepper
15 *Rosemary*
16 *Sage*
17 *Savory*, Summer and Winter
18 *Smallage*
19 *Tansey*
20 *Tarragon*
21 *Thyme*, 3 kinds

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SECTION I.

PRELIMINARY OBSERVATIONS.

As the ground in the eastern and middle states at this season of the year, is frozen so hard as not to be dug, the manure may be carried into those places where it is needed, and left in a heap, but not spread—after the haulm or whatever may remain on the ground from the last year's crop is raked together and burned—the fences to be repaired, seed rubbed out and cleaned, prepare straw mats for the hot-beds, also shreds of the Russian mats, nails and twigs for the espalier trees, which are to be pruned in this and next month,—get all the garden tools in repair, and procure such as may be necessary; provide from the woods a sufficient quantity of pea sticks, and poles for the running beans; dress and point them, so as to be ready for the use designed. This part of the business should not be neglected, until the peas, &c. are sown, or after the hurry of business commences in the spring.

The various kinds of hotspur peas will require rods from four to five feet high, the marrow fat, morotto, &c. from six to seven feet high. The running beans require strong poles from eight to nine feet high.

Every active and well inclined gardener will find abundant employment in the various departments of the garden at this season and he need not be idle.

1.—*Framing.*

The art of managing garden frames in general is absolutely essential to every good gardener, and cannot be better exemplified than in the raising of early cucumbers and melons. And, besides, these fruits coming

into use at an early season, will be much valued and esteemed.

Several other kinds of kitchen garden vegetables are desirable at an early season, such as cresses, rape, lettuce, mustard, radishes, &c. to cut while young; asparagus, radishes, peas, kidney beans, &c. to be forwarded to early perfection; cauliflower and cabbage-plants to succeed those sown in September, and to produce a principal crop for early summer use.

You should now prepare the necessary supplies of hot stable-dung, rich earth, and other requisites for the cultivation of the plants in hot-beds.

2.—*Hot-bed Frames and Lights.*

Large frames ought to be made of 1½ inch or 2 inch plank, of the best yellow pine, 9 feet 2 inches long, 4 feet 10 inches wide, as high again in the back as front, i. e. from 18 in. to 36 in. high in the back, and from 9 to 18 in. in front. This way of making them is to give the top a proper slope to the sun, as well as a declivity to carry off the wet, when covered with glass lights, which are to be taken off, and put on occasionally; every joint ought to be tongued, the better to prevent the admission of cold air into, or the escape of warm air out of the bed. The back and front to be nailed to corner posts, so as to admit the ends to fit neatly, which ends are to be made fast to the posts by iron bolts keyed in the inside, in order that the frames may be taken asunder, when necessary, with the greater facility. When the frame is finished, give it two or three good coats of paint before you use it, and with a little care, and an annual painting, it may last 20 years.

These frames will take three lights of 3 feet wide each, each light containing 5 rows of glass panes 6 in. by 4 in. over-lapping one another about half an inch. Where the sashes (when laid on the frame) meet, a piece of pine about 3½ inches wide and 2 inches thick, should run from back to front (well supported at each place by pieces strongly nailed on) for their support, and for them to slide on, in the centre of which, as well

as in the lower ends of the frame, it will be proper to make a groove, five eighths of an in. wide and one quarter deep, rounded at bottom to receive and carry off any wet which may work down between the sashes.

Provide a requisite supply of good horse stable-dung, from the dung-hills in stable yards, &c. consisting of that formed of the moist stable litter, and dunging of the horses together, choosing that which is moderately fresh, moist and full of heat—always preferring that which is of some lively, warm, steaming quality; of which take the long and short together, as it occurs. Two cart loads will be enough for making a bed of proper dimensions for a one light box, and so in proportion for a larger.

After the dung is procured as above, proceed to making the hot-beds, or if the dung is rank, (previously to forming it into a bed) it would be proper to improve it a little for that purpose, by forking the whole up into a heap, mixing it well together, and let it thus remain eight or ten days, to ferment equally, and for the rank steam to evaporate in some degree; by this treatment the heat will be steady and lasting, and acquire a proper temperament for making the hot-bed, and not so liable to become violent and burning, as when the dung is not previously prepared.

3.—*Compost.*

A gardener should always provide himself with a proper supply of rich, light, dry earth or compost, under some airy dry shed, or hovel, covered at top, to keep out the rain, &c. that the earth may be properly dry; for if too moist or wet at this time, it would prove greatly detrimental both to the growth of the seed and young plants, as well as be very apt to cake and burn at bottom, next the dung, by the strong heat of the bed.

In order to prepare the compost (if a sufficient quantity is not easily obtained) procure equal parts of good, light, rich, garden earth, and mellow surface loam from a rich pasture ground, with the turf; add to these a fourth of very rotten, or old, hot-bed dung, and let the whole be duly incorporated, and exposed

to the weather several months before it is used, turning the heap over every five or six weeks.

4.—Framing Ground.

This part of the garden should be well defended from cutting winds, exposed to the sun, and enclosed with live hedges, or a close board fence, the former being preferable. If the bed is made on the surface of the ground, at this early season, it affords the opportunity of lining the sides with fresh hot dung, to augment the heat when it declines, and also prevents wet from settling about the bottom of the bed, which chills the dung and causes the heat to decay.

5.—To made the Hot-bed.

Having all things prepared as directed above, and the dung in proper order, according to the manner mentioned in No. 2, begin to make the bed, observing to shake and mix the dung well, as you lay it, and beat it down, as firmly as possible, with the back of the fork, as you go on: but do not tread it, for a bed which is trodden hard, will not work so kindly, and will be more liable to burn, than that which is allowed to settle gradually of itself. In this manner proceed until you have spread four feet thick of manure in the bed, which will not be too much, this will allow it to settle 8 inches, or more, in a fortnight's time, and as soon as settled, let the frame and glasses be put on, and keep them close until the heat comes up, then raise the glass behind, that the steam may pass away.

After the dung of the hot-bed has settled, as before proposed, the next thing to be observed, is the proper earthing of the bed to receive the seed.

Three or four days after the bed is made, prepare to earth it, previously observing, if it has settled unequally, to take off the frame and glasses, and level any inequalities, make the surface smooth, put on the frame again, and then lay therein as much of the above-mentioned earth as will cover the whole surface of the bed, about four to six inches thick. It is then ready for sowing the seed, or fixing the pots therein.

SECTION II.

1.—*Early Cucumbers and Melons.*

As it is generally the ambition of gardeners to excel each other in the production of early cucumbers, &c. all necessary preparations, for that purpose, should be made this month, by preparing the hot-beds (as directed in the former section) in which to raise the plants; for they, being of a tender quality, require the aid of artificial heat, under shelter of frames and glasses, until the middle or latter end of May. But by the aid of hot-beds, cucumbers, in young green fruit, may be fit to cut or gather in Feb. Mar. and April, &c. and ripe melons in May and June.

The proper sort of cucumbers for the early crops, are the early short prickly and long green prickly; of which the first comes earliest, but the latter is considerably the finest fruit.

The cantaleupe is one of the best melons, for its handsome growth, good size, and superior flavour. The Polignac, nutmeg, and Minorca, are also fine melons.

In procuring seeds for immediate sowing, both of cucumbers and melons, it is advisable to have those of two, three or four years old, if possible, as the plants will generally show fruit sooner, as well as produce more fruit than those of new seeds.

After performing the directions given in the preliminary observations, fill two, three or more middling smallish garden pots, with more of the aforesaid rich earth, place them within the frame on the hot-bed, put on the glasses and continue them till the earth in the pots is warm; then sow the seeds in the pots, both of cucumbers and melons, separately, more or less in each pot, according to the quantity of plants required, covering in the seeds near half an inch deep with the same earth.

After sowing the seeds, put on the glasses close; but when the steam from the heat of the bed rises

copiously, give it vent by raising one corner of the upper ends of the lights, half an inch, or an inch. Carefully cover the glasses of the hot-bed every evening, about an hour before sun-setting, if mild weather, but earlier in proportion to its severity, with garden mats, and uncover them every morning, about an hour after sun-rise, at this season; and as the bed will at first have a strong heat and steam within the frame, it may be advisable to cover only a single mat thick, for the first three or four nights, but as the great heat decreases increase the covering.

In three or four days after the seed is sown, you may expect the plants to appear, when it will be proper to admit fresh air to them, by raising the upper end of the glass a little every day; and if the earth in the pots appears dry, refresh it moderately with a little water which has stood in the bed all night, to take off the cold chill; applying it about twelve o'clock of the day, and principally only to the earth, about the roots, not over the tops of the plants; which done, shut down the glasses close, for about an hour, then open them again a little, and shut them close towards the evening; then continue to cover the whole every night with garden mats. And now, if the heat of the bed is strong, and the weather not very severe, raise the glass a little behind with a prop, when you cover in the evening, to give vent to the steam, and nail a mat to hang down over the ends so raised, to break off the sharp edge of the external cold night air from the plants; but when the heat is more moderate, the glasses may be shut close every night, and uncovered in proper time every morning, to admit the essential benefit of day-light, sun and air to the plants; admitting fresh air at all proper opportunities in the day-time, to promote strength in the plants, otherwise they would run weak, and very long and feeble shanked; raising the glass as before observed, and if windy or very sharp air, hang a mat before the place as above.

When the plants are three or four days old, they should be planted in small pots, and treated in the following manner. Fill the pots, the day before you

intend to remove the plants, with some rich dry earth, and set them within the frame, till next day, when the earth in the pots will be warm; then take the plants (which are in the seed pots) up carefully, raising them with your finger, &c. with all the roots as entire as possible, and with as much of the earth as will readily adhere about the fibres; the pots of earth being ready, and the earth in them, a little concave, a small depth, place the plants in the hollowed part of the earth slopingly, with their roots towards the centre, and earth over their roots and stems near an inch thick, plant three plants in each pot, and if the earth is quite dry, give a very little water just to the roots of the plants only, and directly plunge the pots into the earth on the bed, close to one another, filling up all the spaces between, with earth, and let the whole of the frame be covered with earth to the rims of the pots.

Examine the beds every day, to see that the roots of the plants do not receive too much heat; if this appears to be the case, draw up the pots a little, replunging them again to their rims when the danger is over. Two or three days after planting, if the bed is in good condition, the plants will have taken root.

If there should be a brisk growing heat in the bed, in order to preserve it as long as possible, apply some outward protection of long stable-litter, straw, waste hay, dried fern or leaves of trees, raising it by degrees round the outsides of the frame. In about a fortnight after the bed is made, the heat begins to decline, then remove the temporary protection of stable-litter; &c. from the outsides of the bed, and apply a lining of fresh hot horse dung close to one or both sides, as may appear necessary, by the heat being more or less decreased; for a constant regular degree of heat must be supported, to resist the external cold, and continue the plants in a proper state of advancing growth, but if the heat is not greatly declined, it would be advisable to line only one side first, applying it to the back of the bed; and in a week or fortnight after, line the front, &c. forming the lining about

15 or 18 inches wide; but raise it very little higher than the dung of the bed, lest it throw in too much heat immediately to the earth and roots of the plants; covering the top with earth two inches thick, to preserve the heat, and prevent the rank steam of the new dung from coming up, and entering into the frame, where it would prove destructive to the plants; the lining will soon greatly revive the declining heat of the bed, and continue it in good condition a fortnight longer.

After performing the lining, if very cold, wet or snowy weather prevail, it may be proper to lay a quantity of dry long litter all round the general lining, which will protect the whole from driving cold, rains, and snow, and preserve the heat of the bed in a fine growing temperature.

By carefully renewing these linings, of hot dung, the bed may be preserved in a proper temperature of heat, to continue the plants, in a free growing state, in the same bed, until of due size for ridging out into the large hot-beds, finally to remain to produce their fruit, as directed in February, under article cucumbers.

2.—*Care of the various sorts of Lettuce.*

If you have lettuce plants in frames, or under hoop arches, which were sown in October, and defended from the severe frost with mats, let both enjoy the open air at all opportunities, by taking the glasses or other shelters entirely off, when the weather is mild and dry; but if the plants are frozen, let them in that state be carefully protected from the hot sun, which would materially injure them.

In very wet weather, and when sharp cutting winds prevail, keep the glasses over them, observing, however, to raise the lights behind, two or three inches in mild days, to admit air to the plants; for if they are kept too close, they will be drawn up weak, and attain to but little perfection; but let the glasses be close shut every night. In severe frosty weather keep them close night and day, and cover the glasses with

mats or straw, &c. both of nights and occasionally in the day time.—Also let the same care be observed to those under hoop arches: but let them have the full air, in mild, open weather.

Where lettuces are planted in a south border, under a wall or board fence, &c. it would be advisable, in hard frost, to cover them as above.

Pick off all decayed leaves, keep them clear from weeds, destroy slugs, and in mild weather stir the surface of the earth between them.

3.—*Sowing Lettuces.*

When lettuces have not been sown in autumn for early spring uses, you may now sow any of the cos, or cabbage kinds, on a slight hot-bed under glasses, to be planted out in spring; the young plants may be forwarded, if pricked into another fresh hot-bed next month; and in the latter end of March, or beginning of April, they will be strong, and fit to be transplanted into warm borders.

4.—*Forcing early Asparagus.*

Hot-beds for forcing asparagus may be made with success, any time this month, which will afford young asparagus for the table in February and March.

For this purpose, you must be furnished with plants that have been raised in the natural ground till of three or four years growth, which are to be planted in a hot-bed, and managed agreeably to directions in No. 1 of this section. Or,

Beds of asparagus may be previously provided to suit the frames intended for this purpose, and after the plants are three or four years old, they may be dug around, and the frames set down within 4 or 5 inches of the top of the bed, and the trench around the frame or frames, sufficiently large to hold the proper proportion of hot dung to force the plants, and as this is to be attended to in the fall, they must be protected from severe frosts, by being covered with straw, &c. to about two feet deep, until it may be judged necessary to force the asparagus, which should be be-

gun six or eight weeks before it is required to be used, and when the straw &c. may be taken off and the glasses put on, also the trenches to be well filled with hot dung about 2 feet wide and 2½ feet deep all around the frame, and afterwards managed as No. 1.—early cucumbers, &c. Asparagus, forced in this last manner may be furnished for the table in December, January and February.

But the former method is generally followed by gardeners, as suitable plants can always be obtained for the purpose, and the latter requiring a systematic arrangement of three or four years, it is not so frequently followed, but as in both cases the plants are materially injured, in this latter method they recover sooner than in the common way; and three beds of asparagus arranged according to this method will answer for a continued succession of hot-bed plants.

For further particulars, see this article in Feb.

5.—*Mint, Tansey, Tarragon, &c.*

Make a small hot-bed for mint, when it is required at an early season, in young green shoots, for sallads, mint-sauce, &c.

About two feet thick of dung, may be spread over the hot-bed, and over this lay about 4 or 5 inches depth of earth, ready for planting.

Then having some roots of common spear-mint, place them upon the surface, pretty thick, and cover them with earth about an inch and a half deep.

By the same means you may obtain tansey and tarragon.

6.—*Small Sallading.*

Make a slight hot-bed, in which to sow the different sorts of small sallading, such as cresses, mustard, rape, radish and lettuces, to cut while young.

Let small, shallow, flat drills be drawn from the back to the front of the bed; sow the seed therein, each sort separately and very thick, covering them not more than a quarter of an inch with earth; or if but just covered, it will be sufficient, and the plants

will rise more expeditious and regular; as the seed may be sown thick all over the bed, each one separate; smooth it down with the spade, then sift as much light earth over as will just cover it, and directly put on the glasses.

As soon as the plants appear, give them as much air as the state of the weather will admit of. Where a regular succession of these small sallads are required, the sowings should be repeated once a fortnight.

If you have not hot dung to spare to make hot-beds for this purpose, the seed may be sown in a sloping bed of natural earth, under a shallow garden frame, covered with glasses; and also carefully covered with mats, in severe frosty weather.

7.—*Cauliflower Plants.*

The cauliflower plants which were raised and planted in frames last autumn for protection in winter, to plant out in spring, for an early summer crop, should be examined in open weather, and where any damaged or withered leaves appear, let them be picked off; suffer no weeds to grow among them, and stir the surface gently between, which will enliven and cherish the plants.

In open weather, let the plants have plenty of air every day, by raising the glasses, or taking them entirely off when the weather is mild and dry; but generally continue the glasses over in rainy weather; keeping them close down every night, and do not open them at all in severe frosty weather.

In severe weather, cover the glasses every night with mats; straw, &c. also in such weather, lay some litter around the outsides of the frame.

8.—*Sowing Cauliflower seed and Cabbage seed.*

Sow cauliflower seed the beginning, middle, or any time this month, to raise plants to succeed those sown in autumn, or in case those have been killed by the severity of the winter; but in order to forward the plants, it will be necessary to sow them in a slight hot-bed,

and proceed as directed for cucumbers, No. 1 of this section.

Cabbage seed.—This is a proper time to sow a full crop of early cabbage seed to succeed those sown in September. The kinds are the early Smyrna, early York, early dwarf, or Battersea and early sugar loaf; to be treated as the cauliflower plants, although these latter are more hardy and require less heat.

Sow also some of the large late kinds of cabbage, such as the flat Dutch, drum-head, &c. likewise some of the red pickling cabbage. The plants from this sowing will be fit in July, August, &c.

9.—*Sowing Carrots.*

When young carrots are required as early as possible, they may be forwarded by sowing the seed in a moderate hot-bed about the middle of this month.

Make the hot-bed about two feet thick of dung, and lay six inches of light rich dry earth on the bed. Sow the seed thinly on the surface, and cover it with the same kind of earth a quarter of an inch deep.

When the plants come up, let them enjoy the free air in mild weather, but cover them in cold nights, and in every severe frost, whilst young, and when an inch or two high thin them to about two or three inches asunder. They may be drawn for use in April and May.

The early horn carrot is the best for this purpose.

10.—*Sowing Radishes.*

In order to have radishes as early as possible, recourse must be had to the assistance of hot-beds; therefore any time in this month, make a moderate hot-bed for a garden frame, only about 2½ feet depth of dung, sufficient just to promote the early germination of the seed, and forward the plants moderately, without running them up long shanked, &c. When the bed is made, set on the frame: lay on about six inches of light, rich, dry earth, or compost, then having some seed of the best early short top salmon, or purple radish, sow it evenly on the

surface, press it into the earth with the back of the spade, cover it nearly half an inch deep with the prepared mould, or light, rich earth, and cover the frame with the glasses.

When the plants appear above ground, give them as much air as possible, but so as to guard against the ground being at all frozen, the glasses, with this precaution, being entirely taken off, whenever it can be done with safety, even for half an hour at a time, or tilting them high at one end, as the weather will permit, otherwise they will run up long shanked, and fail altogether. After the plants have been up a few days, thin them regularly with your hand, where they stand too thick, and leave the strongest plants not less than an inch asunder. Keep up a gentle heat in the bed when it declines, by applying a moderate lining of hot dung.

11.—*Mushrooms.*

Mushroom-beds should be carefully attended to at this season. They should have sufficient covering to defend them effectually from the frost, snow, or much wet or moisture. The covering should be of coarse litter, straw, haulm or other refuse materials, (buckwheat haulm, if taken care of where it can be had in plenty, would answer many valuable purposes,) this covering should be at least two feet thick, and if heavy rain or snow should have penetrated quite through the covering, this must be removed immediately, or the spawn will be in danger of perishing. Replace the covering, when this occurs, with another of clean, and dry wheat, or other straw, or of haulm, as before, and in order to defend the bed more effectually from wet or cold, it is advisable to spread large garden-mats, or canvas cloths, over the straw, which will prove a great preservative to the beds.

12.—*Artichokes.*

Artichokes, if not landed up before, should not be neglected any longer, except the severity of the frost prevents it; in which case, cover each plant with light

stable litter, first clearing away the decayed old leaves —but if the state of the earth will admit of it, dig between, and earth up the plants.

The work of landing up and securing Artichokes against severe frosts, should be carefully performed in November and December. It should never be omitted at that time, for if this care is not extended then, the plants will be in danger of being entirely destroyed in severe winters, and it may be difficult to procure young slips to recruit the plantations. If the plants are of the true globe sort, this care is the more necessary, as they are particularly tender.

It would be advisable, as soon as the severe frosts commence, to spread light, dry, long litter, between the rows, and if this litter should settle down so as to become of but little import, it should be taken off, and a second or even third supply may be spread over them.

13.—*Potatoes.*

If young potatoes are required early, plant some of the early dwarf kind in a moderate hot-bed, and protect them from frosts as before directed.

14.—*Natural ground sowing for earliest productions.*

This may, some seasons, be performed in the middle states, at this time of the year, and when the weather is mild and the earth can be dug up, some of the hardy plants may be sown in warm south exposures, although the crop is not much to be depended on, yet sometimes it sufficiently rewards the toil.

Spinach of the round leaved kind may be sown in a situation as above.

Parsley, also, for sprigs for early use—in a south border.

Some small sallading may also be sown, and radishes.

And although the weather may set in cold and destroy the germination of the seed, yet the ground will be improved for the March crops.

Where a new kitchen garden is forming, or intended, the preparation of the ground should now be forwarded, by digging, trenching, and occasionally ma-

nuring with dung, where needful, and also applying portions of fresh earth to such particular parts where it may appear necessary, having the whole, one or two spades in depth of good fertile soil; and when wholly prepared as above, divide and lay out the ground into regular compartments generally, forming a border; next the outward fences, from four to five or ten feet wide; and next to this allow five feet for a walk, then a border three and a half or four feet wide; and within this have the main quarters, for the principal general crops, divided into beds and other compartments.

By trenching it is intended to have the ground dug two spits deep, the under part of the mould thrown on the top, in long ridges, if the whole had been well manured, and this part of the work would have been better performed in the fall or beginning of Dec. and when it may be required to spread the ground for planting it may be done with facility, and the soil will then be adapted for carrots, parsnips, beets, and such other esculent roots as require a deep soil.

As the winters in the middle and eastern states are often very severe, and also variable, the best general rule for the gardener, is to trench his ground as late in the fall as he possibly can, the winter will then meliorate and improve the soil, and the virtue of the manure will be more readily received by the plants, as well as enable him to prepare the different compartments for the spring crop, which requires his full attention in March, the whole coming on nearly at one time, and he can spread three or four times as much ground in the time he may be employed in digging a certain portion. And as no specific season can be fixed on for the general crops in the natural ground, the gardener ought always to be prepared to commence his work as soon as the hard frost is over, so as to have his hardy seed in the ground as early as possible; yet some general rules will be given in the following pages.

Southern States.

In Georgia, South Carolina, Mississippi, Louisiana, and such other parts of the southern states, as are

not subject to winter frosts, you may sow carrots, parsnips, beets, spinach, lettuce, radish, celery, parsley, cauliflower, broccoli, cabbage, onions, &c. especially towards the latter end of this month.

Sow peas and plant beans of various kinds, earth up such beans and peas as are advanced in growth, rod and stake such of them as require it.—As the temperature of the climate in these southern states, at this season, is somewhat similar to that of March, in the middle and eastern states, the directions given in March will answer for the southern states in this month, and ample instructions will there be given.

FOR FEBRUARY.

AS the kitchen garden is the most useful, as well as absolutely necessary department, in order to have a full supply of the necessaries of life, it is therefore of the utmost importance to pay some attention to the choice of soil, situation, and extent, as well as to manure it sufficiently for the regular growth of the crops.

A full supply of manure, compost, or rich soil, should be procured, and the plants will thrive much better, should the manure, if stable dung, be left in a heap and turned over frequently, for some months before used; also, that the ground in general be trenched two spades deep, as directed in January, and the manure well mixed throughout. This work, where it can be conveniently done in the fall, will amply repay the gardener for his toil, as well as enable him to expedite his business in this and the next month, when the employment will demand full attention, as, in most cases, simply spreading the trenched ridges will be sufficient.

The compartment for peas, Windsor beans, kidney beans, &c. need not be more manured than rich ground for wheat or other grain; and be careful not to put any dung on (even though it may be entirely rotten) in the spring.

1.—*Situation, Soil, Water, &c.*

A moderately low situation is to be preferred, as being less exposed to cold cutting winds in spring, and more retentive of moisture during the summer months. If there should be a moderate slope, to the

south it will be desirable; this, however, is not absolutely necessary, if it be not overflowed in winter; but it should be moderately dry, and then by manuring and proper attention, good crops may be produced. A loamy soil, either of a brown or black colour, is the best, more particularly a light, sandy, hazel loam. A clayey, strong, stubborn soil must be improved by mixing sand, ashes, and other loosening light substances. A sandy soil, which is of a very light, sharp nature, must be fertilized by plenty of rotten dung and strong earths.

Water is a very essential article in a kitchen garden in summer, to water all plants newly set out, and also such as cannot subsist without a due supply of moisture during the drought of that season; therefore, one or more reservoirs of water should be formed in the most convenient part of the ground, and kept constantly supplied with water for this purpose.

2.—*Fences for enclosing the ground.*

It is absolutely necessary to have an effectual fence around the kitchen garden, both for security, and to defend tender and early crops from severe winds and frosts. It should be laid out either square or an oblong square, which experience has determined to be the best.

The garden may be enclosed, either with a high board fence, (which should be tongued and grooved,) or where it is not to raise wall fruit, a hawthorn hedge will answer; but where wall trees are intended, especially in the northern parts of the United States, no fencing is equal to brick walls, which, by reason of their retaining and reflecting the sun's heat, are the most effectual preservatives of the latest and more delicate kinds of fruit.

Hot-walls, for forcing by fire heat, &c. are often erected in large gardens; for an account of which, see the fruit garden for January.

3.—*Laying out the Ground.*

The ground must be divided into suitable compartments or squares for regularity and convenience. A border must be carried round close to the boundary walls or fences, about six or eight feet wide, in order to raise the various early and other kitchen garden crops, and also for the benefit of the wall trees, if any. Next to this border a walk should be continued all round the garden, from five to ten feet in width. The remaining part of the ground may be divided into plats of about 100 feet square, round each of which, a border may be laid out of about three and a half feet wide, in which, where the garden is not large enough to admit of pleasure grounds, the various annual flowering plants may be raised; these borders may be edged with thyme, savoury, sage, hyssop, lavender, sweet marjoram, &c. which will produce a useful crop, especially if designed for the market. The beds may then be laid out evenly, (about 3½ feet wide,) by a line, and the walks between each bed trod down firm, and where it is intended to be neat, the edges of the beds, as well as of the borders, may be cut down with the spade by a line, and about an inch of earth thrown out of the walks on the beds, and carefully raked over them; the whole will be then in order for planting; but this part of the work can seldom be performed in the middle states until March, except in the warm borders adjoining the walls or fences, which are therefore very valuable for early crops.

4.—*Culture of the Ground.*

With respect to the culture of a kitchen garden, it consists principally in a general annual digging; proper manuring; sowing and planting the crops correctly; pricking out, planting and transplanting various plants; keeping the ground clean from weeds, frequently loosening the soil with the hoe, and watering the crops occasionally in the drought of summer.

Digging must be performed early in the winter, or as soon in the spring as the frost will admit of it; also

as often as any new crops are to be planted at any season of the year, and at every digging a fresh supply of rotten manure should be used, except for peas and beans. In the spring digging, it would be advisable to pare off about two inches at the top and turn it into the bottom of the trench; this should be done two spades deep for carrots, parsnips, beets, and other deep rooting esculents; for other plants, one spit deep may answer.

5.—*Manure.*

Any kind of dung, or compost of dung and earth is proper. Horse stable dung rotted, suits all sorts of plants; well rotted neat's dung, or a compost of different kinds, as horse dung, neat's dung, hog's dung, farm-yard manure; mulch, ashes, lime, rubbish broken small, saw dust, rotten tan, having all lain together, and frequently turned until well rotted, will make excellent manure.

6.—*Appropriation of the borders, &c.*

The south border must be appropriated for raising the earliest plants, as early peas, beans, radishes, spinach, lettuce, carrots, small sallad, kidney beans, &c.

The east and west borders for the succession of the foregoing early crops; and

The north border, being shady and cool, will serve for raising, and pricking out many plants, slips, and cuttings in summer.

The internal parts, called the quarters, are always to be appropriated to raising the larger principal crops, such as cabbages, cauliflowers, broccoli, coleworts, peas, beans, kidney beans, onions, leeks, carrots, parsnips, beets, potatoes, turnips, artichokes, &c.

One of the quarters may be allotted to gooseberries, currants, raspberries, and Indian corn.

The gooseberries may be planted in rows at about six feet distant, and the same in the rows, and trimmed up with a single stem about 18 inches, and then the crown.

Currant bushes may likewise be planted in rows at about six feet distant, and about two feet asunder in the row; stakes may then be driven down on each side of the rows, so as to form an enclosure about two feet wide the whole length of the rows, and about three feet high; nail two strips on each side of these stakes, one at the top, and the other about half way down, which will keep the bushes within due bounds, form a handsome hedge, and produce large fruit and a plentiful crop. This will answer for both the white and red. The black currant should be planted from two to three feet apart in the row, and the trellis should be allowed six inches more width than the other, also six inches more in height.

Raspberries, both the yellow and red, to be planted in rows about six feet asunder, and the rows about nine feet apart. If good posts are set in the ground, about six feet out of the ground, and about twelve feet apart along the row, the bed allowed to be three feet wide, the posts planted opposite to each other, and iron hoops nailed thereto, near the top, and about half way down, and rails of about thirteen feet in length, and one and a half inches thick, cut in with a saw so as to fix on the iron hoops, the plantation will have a fine effect, both as to its appearance and production.

Indian corn, for an early crop, will suit in this quarter, and if the low corn is procured from the northern parts of Vermont or Canada, every other year, (as it materially changes when planted in a southern climate) ears for the table may be furnished about the time of wheat harvest; for the culture of it, see March.

4.—*Cucumbers and Melons.*

Should the raising of early cucumbers and melons not have been begun last month, it may be undertaken in the middle or latter end of this, with a greater prospect of success, observing the directions given under this head in January.

The seed hot-bed which is to be made now, either for cucumbers or melons, must be managed, as well

as the seed sown, as directed in last month; also observe that to be well supplied with cucumber or melon plants, in order to have a reserve for accidents, which may and will happen, as the plants are very tender, and the season difficult, sowings ought to be made every three or four days, both in last month, and also in this.

5.—Ridging out early Cucumbers and Melons.

Such of the plants as were sown last month, and have been preserved in a good growing state may now be fit for ridging out into a larger hot-bed, there to produce their fruit.

A new hot-bed or beds should therefore be prepared for these plants, agreeably to the directions given in January. The bed being finished, put on the frame and lights, tilting the upper end of the lights, that the steam may pass off. In a week after the bed is made, level it and again put on the frame; and if the violent heat is over, (but be careful to let that pass off first,) lay in the earth, of the sort before directed; make a hillock of this earth about ten inches high under each light, the spaces between the hillocks and quite to the sides of the frame, to be covered only three inches, which is to be added to, when the heat is become moderate, until it is raised as high as the top of the hillocks; this addition is to be made by degrees. As the plants were directed last month to be planted in pots, three of the plants are now to be turned out of a pot, with the ball of earth entire, into each of these hills; the pots should have some water given them the day previous to transplanting; take the strongest plants, and when the ball of earth is taken entire out of the pot, make a hole in the middle of the hill, and place the ball with the plant entire in the hole so made, closing the earth well round it, and about one inch over the top, to the stems of the plants, shut down all the lights close till the steam rises strong, when they must be tilted behind sufficiently to give it vent.

It will now be necessary to use every precaution in order to support a constant temperate heat in the hot-

bed, also tilting the glasses to give air, and to line the outside of the frame with litter, &c. Some gardeners are so attentive to this part of framing, that they ascertain the degrees of heat by plunging a Fahrenheit's thermometer in the hot-bed, and have fixed the following standard.

The temperature for some of the principal esculents, forced in frames, or otherwise, should be as under:

	MINIMUM, *at night.*	MAXIMUM, *in the day.*
Sea Kale	50°	58°
Asparagus	50°	60°
Hardy natives, in general	50°	60°
Potatoes	60°	70°
Kidney Beans	60°	70°
Cucumbers	60°	70°
Melons	65°	75°

The gardener is directed in the former part of this paragraph, to add earth between the hills of the cucumbers and melons by degrees, when the great heat abates, to which this additional direction may now be given; should the roots of the plants appear through the sides of the hills, the earth between the hills may be taken away, and fresh earth added, which should be moderately dry, and as warm as the temperature of the bed; with this cover the roots of the plants, and every three or four days add more, until it is the height of the hills. This earth may be put into the frame for one night, or until it has acquired the temperature of the bed.

6.—*Of pruning or topping Cucumber or Melon Vines.* Both cucumber and melon vines will produce fruit earlier, if the first runner is stopped or pruned early, and the cucumbers planted last month will require this operation to be performed about the middle of the present month; the melons will be somewhat later.

In the centre of the plant at the bottom, of the second rough leaf, the first runner commences, which appears like a small bud, this is to be taken off close,

which is best performed with a pair of sharp small scissors, but be careful not to do it so close to the plant, as to wound the joint from whence it issues.

After the plants are thus pruned, they will gather strength in a few days and be more stocky, and in about ten or twelve days will begin to send out two or three runners, which are the bearing shoots, and will probably show fruit at the second or third joints, but the runners, if not pruned off, would prevent these lateral branches from putting out as soon, and besides, might fill the frames without producing any fruit. The weakly vines should be cut out, and also those which are too much crowded. If the bed is properly managed, and the plants have succeeded well, fruit will begin to appear by the latter end of this month or beginning of next, on the cucumber vines. The melons require about six or eight weeks longer.

7.—To impregnate the young fruit of Cucumbers or Melons.

The flowers of the cucumbers and melons (as well as the squash and some other running vines) are male and female, separate on the same plant; the female flowers produce the fruit; the males are commonly called *false blossoms*, yet they are absolutely necessary for the fecundating the female or fruit flowers, according as they come into blossom, and in hot-beds, for early fruit, it is necessary to assist nature in this important task, by applying the central anthera of the male, to the stigma in the centre of the female flower.

This business of setting the fruit in cucumbers, &c. in hot-beds, where the air cannot carry the male farina to the female stigma, is a curious and absolutely necessary operation, as may be conceived by the profusion of farina, which is scattered by Indian corn, not only over the silk (or umbilical cords) of the ear, but is wafted by the winds from one field to another. In order to set the fruit in the early plants of cucumbers or melons in hot-beds, observe the following particulars. Cucumbers and melons, as before observed, produce male and female blossoms distinct

on the same plants. The female or fruit bearing flowers are easily distinguished from the males; the former having always the embryo fruit placed immediately under the base of the flower; that is, the embryo fruit shoots forth with the flower bud on its top, visible at its first eruption from the stem of the plants, while the male blossom is placed immediately on the top of its foot-stalk, without any appearance of fruit at its base. The anthera of the male is situated in the centre of the flower, and is furnished with a fine yellow farina or dust, designed by nature for fertilizing or impregnating the female; but which as before observed, in early plants in frames, not having the full air, &c. requires the assistance of art; therefore, according as the female blossoms expand, be careful in the same day, or second morning at farthest, to pluck a fresh, full expanded male flower, pull away the petal or flower leaf, then holding it by the stalk, apply the remaining anthera or male in the centre, to the stigma or central part of the female blossom, twirling it about with the finger and thumb, to discharge some of the fecundating powder on the female organ; and thus the fructification is effected, which will be obvious in two or three days, by the young fruit beginning to swell; always, if possible, procure a fresh male blossom, with its full portion of farina for each impregnation. Without the assistance of the male blossoms, the females, having the embryo fruit at their base, wither and decay, and the fruit soon turns yellow and drops off. After this operation, the fruit of cucumbers, will in two or three weeks, arrive to a proper size for gathering for the table, provided the plants have a generous and vigorous growth. As in mild seasons the cucumbers may show fruit in this month, the method of impregnating is given at this time, but it will more frequently be necessary to perform it in March.

8.—*To force Asparagus.*

Plant a quantity of three or four year old roots, in a hot-bed, under frames or glasses, to produce a suc-

cessions, for early gathering, as directed in last months, see September, October, November, or if beds are provided, proceed as in January.

9.—*Artichokes, to secure the plants.*

If the weather is severe, defend each plant, by laying around it, the driest litter, or coarse straw.

10.—*Planting Beans.*

As a tolerable crop of the early mazagan, early Liston, long podded, white blossom, large Windsor, toker, Sandwich, and other kinds of the vicia faba of Linnæus (not the kidney bean) cannot be raised in the United States, especially in the middle and southern parts, unless they are put in the ground, as early as the frost will admit, they should therefore be planted either in this month, or the beginning of March, as they will not be liable to be injured by any frost, except in very extraordinary cases. A strong, heavy soil is the most suitable.

Plant the small early kinds, in drills, three feet asunder, and the beans two or three inches distant in the rows, and covered two inches deep.

The large kind, such as the Windsor, toker, Sandwich, and broad Spanish, should be planted at the distance of four feet asunder, and somewhat thinner than the small kinds.

The plantings may be continued until the middle of March, but those planted after that season will not be so large or productive.

11.—*Sowing Peas.*

Towards the latter end of this month, prepare a south border of light, dry earth, raise the earth into narrow sloping ridges, about a foot broad at the base, and nine inches high, and at the distance of three feet from each other; ranging those in a south-west direction, from the north side of the border, then on the eastern side of these, about half their height, sow your drills of peas. In this situation they will have all the advantage of the morning and mid-day sun,

and advance in vegetation much more rapidly than if sown in the ordinary way.

Sow each sort, separate and pretty thick in the drills, covering them not more than an inch, or an inch and a half.

Peas may also be forced in hot-beds, if required; or they may be sown in pots and planted out afterwards in other pots, when they have attained about one or two inches in height, if there is the conveniency of a hot-house.

12.—*Cauliflower Plants.*

The early autumnal sown plants, which are in frames, must be protected with a covering of boards, mats, &c. without the assistance of glasses, and never have powerful sun-shine admitted to them while in a frozen state.

Those plants which were raised from seed last month, should, as soon as they arrive at the size of about 4 or 5 in. be transplanted into a new moderate hot-bed, as they will thus bear transplanting much better than if left in the seed bed.

When transplanted and managed as directed, and the proper season arrives for planting them out, they are to be taken up separately, with a hollow transplanting trowel, preserving as much earth as possible about the roots of each plant, and deposited where they are to flower; thus treated they will be scarcely sensible of their removal, will continue in a constant, regular state of vegetation, and if protected for 10 or 12 days, with suitable coverings from too powerful sun, and also at night, success will crown your labours.

Continue to give a due portion of air to your cauliflower plants, at all favourable opportunities.

13.—*Sowing Cauliflower seed.*

Sow some cauliflower seed in a hot-bed, the beginning, middle, or latter end of this month, to succeed those sown in January.

14.—*Cabbage plants.*

Continue to protect your autumn sown cabbage plants from the severity of the weather, but be careful that such as are under frames, and have got frozen, from the extreme severity of the weather, are not exposed to the strong influence of the sun, until the earth, in which they are, is gradually thawed, which must be done with great caution.

The cabbage plants which were sown last month, should, as soon as they have arrived to the height of three or four inches, be transplanted into a new hot-bed, at the distance of 3 or 4 inches from each other, each way.

15.—*Cabbage seed.*

You must now sow a full crop of cabbage seeds, such as the early Smyrna, early York, early dwarf, Battersea, and early Sugar-loaf, to be sown in a hot-bed.

Towards the latter end of the month, you may sow these kinds on a warm south border, to be covered with frames and glasses, or on slight hot-beds, to be covered as before, or with paper frames, boards or mats, occasionally.

Begin now the sowing of the drum-head, flat Dutch, Savoy, red pickling cabbage, and other late cabbage seeds; these will produce larger heads and earlier, than if sown much later.

16.—*Radish seed.*

In order to have radishes to succeed those sown in January, let some of the early kinds be now sown on a slight hot-bed, and treated as before directed.

Towards the end of this month, if the weather is mild and the ground open, you may sow, in a warm border, some short top, early frame, white and red turnip-rooted radish seeds, keep them separate in the beds. These, if they succeed, will be fit to draw early in May.

On another piece of ground sow salmon and purple radish to succeed the former.

A small portion of spinach and lettuce seed may be sown amongst them without injury to either.

17.—*Carrot seed.*

If carrots are desired at an early season, some seed may be sown in a slight hot-bed, towards the middle or latter end of this month. They will answer without glasses, if the frame be covered at night with mats, and also in severe frosty weather, in the day time. The early horn carrot should be chosen.

18.—*Parsnip seed.*

Parsnips being very hardy plants, and the seeds remaining in the ground a long time, before they vegetate, may be sown as early in this month as the ground can be prepared to receive them.

Those sown as directed in August may now be thinned, so as to be about eight inches from root to root, and carefully cleaned from weeds, the ground stirred about them to encourage a lively growth, but if this cannot now be done for the frost, do it as early as possible.

When the ground is bound up by frost, the intelligent gardener will readily perceive these directions are designed to expedite the important task of getting his seed in the ground as early as possible.

19.—*Spinach seed.*

As the prickly seeded spinach is the hardiest kind, sow some of it on dry warm ground about the latter end of this month; sow the seed thin, and regular, and rake it well in.

20.—*Lettuce seed.*

If the weather is mild and the ground in good condition, about the latter end of this month, you may sow some lettuce seed, which ought to be defended by a wall, hedge, or board fence.

The kinds to be sown at this season are the early curled, and common cabbage lettuce, if intended for small sallading; to be sown very thick on the surface, after the ground has been carefully raked over, and then covered; observing that these seeds require but a slight covering of earth.

You may also sow other kinds, such as the white or green cos, and spotted cos, or if to produce heads you may sow the white Silesia, grand admiral, large Mogul, brown Dutch, or New Zealand lettuces, good hard heads; for this purpose they must be sown very thin, and when of sufficient size, transplanted into different borders; leaving a sufficiency in the seed-bed, which will head earlier than those which may be transplanted.

Lettuces which have stood the winter, closely planted in frames, should, if expected to grow large, be thinned, about the latter part of this month, to about a foot asunder. Be careful to pick off all the decayed leaves, and to stir the earth about the roots.

21.—*Parsley seed.*

Sow both common and curled parsley seed on a warm border.

22.—*Celery.*

A small quantity of celery may be sown towards the end of this month, in a small bed of light, rich earth; for an early crop, the best kinds are the solid and red celery.

23.—*Kidney beans.*

Where early kidney beans are wanted, they may be planted in this month in a hot-bed, made as before directed. The best sorts for this purpose, are the early cream coloured dwarfs, early speckled, white and yellow dwarfs.

But where there is a hot-house, early kidney beans may be raised with much less trouble, and a greater certainty of success, than in hot-beds.

24.—*Mushrooms.*

Mushroom beds must still be well defended from heavy rains and frosts, both of which would destroy the spawn.

There should be a covering of straw, not less than 15 or 16 inches thick on every part of the bed, and during the cold wet weather, large garden mats should be spread over this, to secure the bed more effectually from snow, rain, or cold; and if at any time the wet has penetrated, and wet the straw, it should be immediately removed, and replaced with clean and dry straw.

Beds may be made under open sheds, or frames with roofs, constructed for that purpose, which might at any time be removed; this would protect them from wet, especially in the winter season, by which the bed is liable to be destroyed.

New mushroom beds may now be made; for the method of making them see October.

25.—*Paper Frames.*

Paper frames made like the cover of a wagon, or the roof a house, with two pitches in the upper part, will be a cheap security for many plants.

A frame may be made, as long and as wide as the bed it is designed for, and strongly mortised and tenanted; where the wagon cover shape is made use of, hoop-poles may be arched from one side to the other, at suitable distances along the frame, from one end to the other, along these hoop-holes fasten strong twine at the distance of 8 or 10 inches apart and also over the tops; then over the whole, paste large strong paper, which must be damped a little in order to have it straight when dried, and after it is dry, paste strips of paper also on the inside, over the twine. When the whole is perfectly dry, give it a coat of linseed oil.

The roofed frame may be made in the same manner, only let the roof open each way toward the ridge, gable ends of wood must of course be mortised into the frame, and at the sides and also the ridge, strips

fastened, for the openings of the roof to be fastened down to.

These frames, if well painted, will last for several years, and may be used on several occasions.

Southern States.

Georgia, South Carolina, and several other of the southern states this month, will afford the gardener the same active employment as March compels those in the middle states to give their attention to, and of course they will find the necessary directions in next month.

In the eastern states and the more northerly parts of the Union, hot-beds and hot-houses will claim a longer attendance, but as the middle and latter end of March and beginning of April will probably relieve the ground from its frost, the plan pursued in this work will be useful to them also; observing that they must be prepared, as soon as the severe frost will admit to expedite their plantings and sowings.

FOR MARCH.

THE weather in this month, both in the middle and eastern states, is very unsettled, sometimes dry and frosty, at others, tolerably warm, and at other times, cold and wet, with storms, wind, hail, rain, &c. requiring close attendance on the hot-beds, to preserve a regular heat at all times. Snow should never be suffered to lay on the mats, or other coverings. This will apply to the cucumber and melon beds, as well as to all other hot-beds.

1.—*Sow Cucumber and Melon seed.*

Sow in the hot-beds, made last month, or in new hot-beds now to be made, if not done before, cucumber and melon seeds, at the beginning, middle and latter end of this month.

2.—*Making new hot-beds to transplant Cucumbers and Melons.*

Make new hot-beds the beginning of this month, to plant the cucumbers and melons, which remain in the seed beds of January and February. Make the beds as directed in February, page 25, and let the plants be planted therein and managed as directed in last month.

3.—*Impregnating the fruit of Cucumbers and Melons.*

Still continue to perform this important office to the plants as directed last month.

4.—*Cauliflowers to transplant and protect.*

Where cauliflowers were raised from seeds sown last month, they should (when they have grown three

inches in height) be pricked into a new slight hot-bed, at the distance of three inches every way, as directed in Feb. page 31.

By pricking out the plants on a slight hot-bed, it will forward them considerably; and by thus transplanting them they will become strong, and well furnished with roots, and consequently will succeed much better when planted out, where they are to remain, than if transplanted there from the seed bed.

The autumn sown plants, and those which were transplanted last month, from the January sowing, must now have plenty of air, at all suitable times, when the weather is fair, in order to harden them for bearing the open air, when planted out for flowering, which cannot be done with safety, in the middle states, till the second week in April, nor in the eastern states until the latter end of that month, unless you have hand glasses to cover them, in which case they may be planted out about the middle of March, provided the ground is in a suitable condition to receive them.

On the judicious treatment of the plants, in this month, depends their future success.

Sow some cauliflower seed, on a warm border, towards the latter end of this month, to produce their heads in October.

5.—Planting and sowing cabbages.

As early in this month as the weather will permit, which in the middle states, is from the 15th to the 20th, transplant all kinds of cabbage plants, particularly the early kinds, where they are to remain for heading.

Let them be planted in good, rich ground, at two feet and a half for the early kinds; but the late, large cabbage plants should be set three feet apart.

Plant out red cabbage plants, to head in August, &c. and allow them three feet every way.

Sow seeds of every kind of cabbage which you desire to raise, in the open ground, about the middle or latter end of this month. The early Smyrna, early York, Battersea and sugar loaf are the early sorts.

The large flat Dutch, drum head, large English and Savoy, the lake kinds, which should also be sown at this time, as they will produce larger and better heads than those sown later.

6.—*Broccoli.*

Sow some seed of the purple and some of the cauliflower broccoli, for early crops, in October, &c.; sow a little of each kind about the middle or latter end of the month, in an open bed of rich earth, and rake them in; when the plants come up, treat them as directed in May.

7.—*Borecole, or Curled Kale.*

Towards the latter end of this month, sow borecole seeds, for use in autumn.

There are two principal sorts, the green and brown; both very hardy plants, with tall stems, and full heads of thick, curled leaves, not cabbaging, and are desirable open greens for winter. For the method of treating it, see April.

8.—*Crambe Maritima, or Sea Kale,*

May now be planted by procuring year old plants, or seed sowed in light, loose earth, in beds of four feet wide, in rows of one or two feet distance, in the place where they are to remain; and in autumn or winter, clearing off the old leaves, &c. the beds then earthed with light soil; or dry, light, mellow dung, three or four inches thick, and in the spring, the young shoots rising from the roots, through this thickness of earth, are large, white, and tender, excellently good to boil in the manner of asparagus, which it somewhat resembles in taste; some place garden pots over the advancing shoots, at their first protrusion through the soil, or even a month or two sooner, closely stopping the holes in the pots, which will draw them up in quick growth, and increase the length of the white or blanched part, and render it more crisp and tender. This plant is but little known in the United States.

9.—*Spinach.*

Sow spinach every three or four weeks, to have a regular supply; for the plants of one sowing in spring and summer, will not continue fit for use longer than that time, before they run to seed. The seed for spring and summer is the smooth round sort. The seed should be sown thinly, broad cast in beds; you may sow radishes with it.

The crop of winter spinach, which was sown last autumn, will now be in good perfection. It should be kept clear from weeds, and the ground well stirred with a hoe.

When spinach is hoed or hand-weeded, the plants should be thinned to three, four or five inches distance.

10.—*Parsnips.*

Any time after the middle of this month, you may sow parsnips for a full crop. A spot of light, deep loam, inclining a little to sand, and in an open situation, should be chosen for them, as they will thrive best and grow largest in such soil.

The ground should be trenched and well broken, also if it has been well manured in the fall, and turned up two spits deep, the crop will repay the trouble.

The seeds may be sown in drills ten inches distance from each other; when they are about three inches high, thin them to about four inches apart in the rows.

Or a dibble may be used to make large deep holes, which if filled up with light and very rich earth, two or three seeds may be sown in the centre, and when the strongest plant can be distinguished, pull out the rest, the remaining one will sometimes grow to the diameter of thirteen or fourteen inches.

The parsnips which were sown in October, should now be kept clean of weeds, and the ground often stirred between the rows, which may be done with great facility by a small rake with short teeth, a few minutes being sufficient to harrow up and down several rows.

Some radish or lettuce seed may be thinly sprinkled over the bed, after the parsnip seed is sown, as before directed.

11.—*Carrot Seed.*

Carrots may be managed precisely as directed for parsnips, sown thin in drills eight to ten inches distant from each other, and when they have grown about three inches high, thin them to three inches in the rows. Previous to sowing carrot seed, it should be well rubbed in the hands with sand, in order to separate the seeds, as they adhere closely to each other.

12.—*Sowing Peas.*

As early in this month as you can get the ground in a good condition, that is dry and mellow, you may sow a full crop of peas. The early kinds are, the early frame, golden and Charlton hotspurs. Let these be sown in double drills, and the rows three and a half feet asunder. All the crops of peas, to be sown now, are to be placed in open situations.

Sow, at the same time, the bunch or dwarf pea, which comes to perfection much later than the foregoing; the drills of this kind, need not be more than three feet apart.

The glory of England, large marrowfat, Spanish morotto, or large imperial peas, should also be sown, as they will regularly succeed the early crops. Give all the peas sticks in proportion to their respective growths, in order to insure an abundant supply.

The golden, or early hotspur, may be sown every fortnight from this forward, until the middle of August, and although the produce will not be so great as those sown at this time, yet it will afford a variety for the table. Previous to planting these later crops, soak the peas for twenty-four hours, or you may put them in a cullender, and pour boiling water over them, which as it runs off immediately, will not injure the germ, but will facilitate their growth. Observe to water them, should the weather prove dry, and allow

them as much room again in the drills, as those planted, as above.

13.—*Earthing and Sticking the Peas.*

Towards the latter end of this month, the early sown peas will be advanced so far in their growth, as to require a little earth to be drawn to their stems on each side, several times, which will greatly strengthen them, and encourage their growth.

The preliminary observations in January, directed to prepare pea sticks from the woods, for both lower and taller growing kinds; however, where straight round rods or plasterer's laths can be procured, (these last may be split so as to make three rods,) they will answer as well as those from the woods, the peas may then be doubled sticked.

Always be careful to stick the peas when they are about six inches high; for if they fall to the sides, they with difficulty recover their erect posture; and if sticks are procured as in the foregoing paragraph, a range of rods may be placed on one side in a regular declining manner, and another on the other side of the row declining in an opposite direction; or they may be placed in the centre of the row like lattice work, either of which will support the peas against heavy rains, &c. If the sticks are round and dry, or of lath, they may be pointed at the end, and dipped into boiling pitch; after this when taken up, if put under cover, they will last for six or seven years.

14.—*Planting the large Windsor Beans, &c.*

As early in this month as possible, plant a full crop of Windsor beans. The Mazagan and Lisbon are the earliest. The dwarf-cluster bean is a great bearer, never grows above fourteen inches high, and may be planted in single rows two feet asunder.

The larger kinds are the green Genoa, Windsor, and broad Spanish, which last should be planted at four feet, row from row.

15.—*Sowing Parsley.*

Parsley seed may be sown in drills along the edges of the borders, especially the curled sort, or if a larger supply is wanted, it may be sown in beds, in drills nine inches asunder.

16.—*Large Rooted, or Hamburg Parsley.*

Sow the seeds of Hamburg, or large rooted parsley; this is cultivated for its large parsnip-like root; let the seeds be sown in an open situation, in shallow drills, and covered with light earth about half an inch; when the plants have grown two or three inches, they must be thinned to about six inches, to give them room.

17.—*Sowing and Transplanting Lettuces.*

Prepare a warm south border as early in this month as possible, and sow thereon, rather thick, some of the early curled, and some of the common cabbage lettuce, in order to have them fit for cutting, with other small sallading, at an early period, and to succeed such as are forwarded in frames; let the ground be dry and light, and the seed covered very slightly.

You may sow, towards the middle of the month, in any compartments of the open ground, the different sorts of lettuce seed, such as the white, green, spotted, and Egyptian cos, grand admiral, white Silicia, India, tennis-ball, New-Zealand, Mogul, white and brown Dutch, &c.

The different sorts should be sown separate, and let the earth be well pulverized. Sow the seed on the surface, and rake them in lightly, or give a light sifting of earth over them.

It is of much importance to have good kinds, such as will not run to seed before they attain their full growth, therefore if the best plants of the different sorts which you have planted singly, have been in full perfection, before they have shot up for seed, you may rely upon them.

As soon as the weather is mild and warm in this month, transplant some of the lettuce plants, from the beds where they have stood all winter, provided they are too close together. In doing this, observe to take up the plants carefully and regularly, and let the strongest remain for heading, at about ten inches distance, loosen the surface of the earth between them, and clear away all decayed leaves, litter, &c. after which, add a little fresh earth to enliven them.

You must be very particular to inure such plants, as have been raised in hot-beds, to the full air, previously to their being transplanted in the open ground.

18.—*Radishes.*

Sow more seed to succed those sown in last month.

Some of the short-top, salmon, and purple kinds should be sown in an open place, at the beginning, middle, and latter end of this month.

Thin the early crops of radishes, where the plants stand too close; pull up the worst, and leave the others two inches apart; clear them from weeds of all kinds, and stir the earth well about them. In dry, open weather, let them be moderately watered, which will forward their growth, and also render them crisp for eating.

A thin sprinkling of radish seed may now be sown among the general crops.

19.—*Turnip-rooted Radishes.*

Sow some turnip-rooted radish seed. There are two sorts, the white and red. The white is preferable for the general supply, though the red is more delicate.

Let the seeds of both kinds be sown separately in an open place of light ground, and rake them in evenly. When the plants have the first central rough leaves half an inch broad, thin them to about two inches apart.

20.—*Celery.*

Sow a small quantity of celery seed in the beginning of this month, to be transplanted in May. The seed

should be sown on mellow earth. For the method of treating it, see April and June.

21.—*Small Sallading.*

Small sallading, such as cresses, rape, mustard, radish and turnip, should be sown once a week, in a warm border, draw some flat shallow drills, three inches asunder, sow the seeds therein, each sort separate, and cover them lightly with fine earth.

If any of your early advancing crops, as these, peas, beans, &c. are attacked with a hoar frost, appearing on them in the morning, and a warm sunny day is likely to follow, let them be watered, before the sun shines on them, with spring or pump water, to wash and melt it off, in order to prevent their turning black and spoiling.

22.—*Of forking and dressing the Asparagus beds.*

For the purpose of digging or forking these beds, provide a fork, with three tines or prongs, 6 or 8 inches long, about an inch broad, perfectly flat, and the ends of them rounded and blunt. Be careful to loosen every part to a moderate depth, taking great care not to go so deep as to wound the crowns of the roots. The above work, of forking up the beds, is necessary to be done every spring, to improve and loosen the ground, to afford liberty for the buds to shoot up, and also to give easy access to the sun, air, and showers of rain.

Immediately after the beds are forked they must be neatly raked over, and radish and lettuce seeds may be scattered over them,

As weeds, in the middle states, in the spring, grow very rapidly, it will be necessary, either carefully to hand weed the beds, or to give them a second forking up.

22.—*Planting Asparagus.*

In planting asparagus, choose the best soil the garden affords, it must not be wet, nor strong, nor stubborn, but moderately light and pliable, so as to fall

readily to pieces, in digging or raking, and in a situation to enjoy the full sun. Several inches thick of rotten or other good dung, should be laid on the ground, and then regularly trench it two spades deep, bury the dung equally in each trench, twelve or fifteen inches below the surface. When this trenching is done, lay on two or three inches of very short rotten manure, all over the surface, and dig the ground eight or ten inches deep, over again, incorporating this top dressing well with the earth.

The ground being thus prepared and laid level, divide it into beds four feet and a half wide, with alleys two feet wide between each bed. At each corner of every bed, let a firm stake be driven into the ground, to serve as a mark for the alleys.

Four rows of asparagus are to be planted in each bed, and ten or twelve inches distance to be allowed between plant and plant in the row ; the outside rows of each bed, to be eight inches from the edge. The plants to be preferred are those of one year old.

The following is the method of planting them. Strain the line along the bed eight inches from the edge, then, with a spade, cut out a small trench, close to the line, about 6 inches deep, making that side next the line nearly upright, and when one trench is opened, plant that before you open another, placing the plants upright ten or twelve inches distance in the row. In planting them, observe that they must not be placed flat in the bottom of the trench, but nearly upright against the back of it, so that the crown of the plants may stand upright, two or three inches below the surface of the ground ; let them all be planted an equal depth, spreading their roots somewhat regular against the back of the trench, at the same time, drawing a little earth up against them with the hand, as you place them ; to fix the plants in their due position till the row is planted, when it is finished, immediately with a rake, draw the earth into the drill over the plants ; then proceed in the same manner with another row, until the bed is finished, then rake the surface over smooth.

When the plants come up, keep them always free of weeds. Sow no crops whatever on these new plantations.

It will be three years from the time of planting, before the asparagus ought to be cut for the table.

23.—*Sowing Asparagus seed.*

Where it is desired to raise plants for sale, or for planting in forcing beds, the method generally practised, may be followed to advantage ; which is,

To sow the seed about the middle, or towards the latter end of the month, on beds of rich earth, four feet wide. Make drills, six inches apart, and sow the seed thinly in them, after this, cover it about half an inch deep, and then rake the beds smooth. Give the beds occasional waterings, both before and after the plants are up, to strengthen them, and forward their growth. They must be kept free from weeds, by a careful hand, weeding at different times during the summer.

But where new beds of asparagus are required in the middle states, to remain where planted, the compiler of this work, would recommend them to be made in the fall, agreeably to the manner proposed in No. 22, in the first and second paragraphs, by trenching, &c. And as soon as the weather will admit, in the spring dig the ground carefully over, breaking and pulverizing the surface, when it is to be smoothly raked over, and having some of the best kind of seed, stretch the line as directed in No, 22, and plant them with the thumb and finger ten or twelve inches apart, two or three seeds in a spot, as all may not grow, and if they should, after a short time, the strongest plant may be left, and the others taken away. To be kept free from weeds, as the former, and watered occasionally in dry weather.

In the first fall after they are planted, and when the upper part of the plant decays, put about one inch of rich earth over the whole bed, after this spread a dressing of two or three inches of decayed, rotten manure, from hot-beds, if to be procured, if

not, the best manure you can, over the beds; the next spring they are to be treated somewhat like planted asparagus, only observe as the crowns of these are not so deep as the others, the earth in the spring dressing, is to be lightly hoed over. The next fall an additional coat of manure must be again brought over the beds, and so the third fall, when the plants will frequently be stronger than any which have been transplanted.

In the third year after sowing they will be fit for use, and some of the largest and strongest may be cut the second year.

24.—*Beet seed.*

You may now sow some of the different sorts of beet; the deep purple red for its rich root, and the green and white sort for their leaves.

The best plants, of the rich, dark red beet, are raised in the eastern states, and those who wish to have the best seed of this kind, may procure them from Providence, as they frequently degenerate in the middle states, and become white.

After the ground has been manured, and prepared by digging, make drills in the beds one foot asunder, drop the seed therein about one foot apart, and cover them in with about an inch of earth. As many seeds are united together in one globule, several plants will frequently come up together; they may be transplanted, leaving the largest plant in its own place.

25.—*Onion seed.*

In the state of Connecticut, at Weathersfield, they raise onions in great abundance, and in good perfection the first year from the seed. In order to effect this, you must make choice of a suitable soil, a strong, light, rich loam, avoiding too large a proportion of sand, which would become violently hot in summer, so as to prevent the object designed.

The ground should be strongly manured in November, with well rotted cow-dung, or other good rotten

manure, but pigeons' or hens' dung, where a quantity can be procured, is the best kind. If the ground can be prepared in the fall as stated, and thrown up into high sloping ridges, it would be much improved, and meliorated by the frost, &c. and could now be expeditiously, and easily levelled for planting.

After the ground is dug or levelled and well raked, lay it out into beds of three and a half feet wide, with alleys between them of one or one foot and a half wide, and then stretch the line from one end of the bed to the other, about four inches from the edge of the bed. This done take four or five seeds between the finger and thumb, and plant them along the line, at about 6 inches distance, and when the row is completed, cover them about half an inch, and so proceed with the rest.

When the plants are up, let them be kept very clean from weeds, of any kind, by a careful hoeing with a small hoe, and also by hand weeding, which is to be repeated from time to time as they require it.

But when they are raised on an extensive scale, the ground may be cultivated with a plough, and harrowed very fine, but it must be highly manured, and then planted as before directed, observe that the dry tops are always preserved, as an additional superior manure, for the succeeding year. The ground must be frequently well stirred, and kept clean from weeds.

Sowing seed to produce small onions to set out the next year, will be preferable to be done in April; which see.

26.—*Planting seed onions.*

By seed onions, is meant, the small bulbs produced from seed sown last season, which should be planted out, as early in spring, as the ground can be put in good order for the purpose. The southern states in particular, and indeed the middle states, have to depend on such for a general crop, as the summer heats are too powerful, to admit the bulbs to arrive at a sufficient size the first year from the seed.

Having prepared an open piece of strong ground, well dug and richly manured, you may proceed to plant these bulbs, (making choice of the flat ones, about the size of a hazle nut,) in rows, by a line and dibble, let the rows be six inches asunder.

Where quantities of seed onions are to be planted, for expedition sake, prepare an instrument, in the form of a common rake, with six round teeth or pegs, at the distance of six inches from each other, three inches long and near an inch in diameter, tapering to a blunt point, mark out the beds three feet and a half wide, which is the best width for the beds in general, leaving a twelve inch alley between each bed; stretch the line along the bed, and mark out the distance between plant and plant, by the teeth of the instrument; when the whole length of the line is marked out, plant the row of onions, covering them with a little earth as you proceed, until the whole of the planting is finished.

The Allium Canadense, or tree onion, merits culture both as a curiosity, in producing the onions at the top of the stalks, as well as for their value in pickling, in which they are superior in flavour to the common kinds; they are also useful for every other purpose, as common onions.

It is perennial, and propagated by planting the bulbs in spring or autumn, either the root-bulbs, or those produced on the top of the stalks; the latter, if planted in spring, as directed for the other kinds, will produce very fine, handsome sized onions of excellent flavour.

The root-bulbs increase greatly by off-sets, and should be taken up once in every two or three years, at the time when the stems decay in autumn, these, when replanted, will again produce a supply of top bulbs.

27.—*Sowing Leek Seed.*

Leek seed may be sown in drills, and treated as onion seed.

28.—*Garlick, Rocambole, and Shallots.*

Prepare some beds of good ground, in which to plant garlick, rocambole, and shallots. Procure the best bulbs or roots; divide the garlick and rocambole into cloves, and the shallots into off-sets; plant them in rows, six inches distance in the rows, and the rows eight or nine inches asunder, and plant them two or three inches deep.

29.—*Cives.*

Cives, a small species of onions, growing in large tufts, are propagated by slipping the roots, and this is a proper time to plant them. The method is to part or take off eight, ten, or more of the small bulbs in a cluster, and plant them in beds or borders about six to eight or nine inches distance.

30.—*Turnips.*

The early Dutch turnip is the best sort to sow at this season in gardens, but especially for the first and second crops, as well as general summer crops. To be sown about the middle, or towards the latter end of the month, in light rich ground.

31.—*Indian Corn.*

Those who are desirous of raising early Indian corn, must procure the seed from the northern part of Vermont, or Canada, &c.; this should be procured every year, or every other year, as it degenerates when brought to the southern states.

Towards the latter end of this month, prepare the ground for a few hills, by digging and manuring it; make as many boxes of a pyramid form, as you design hills of corn; these boxes should be about eighteen inches square at bottom, and about two feet high, with an opening of three or four inches at the top.

Break off about one-third of the ear at each end, reserving the middle third part for planting; then make the hills about three feet apart, drop four or

five grains in each hill, and cover them about one and an half inches with good earth. The hills must be covered over carefully every night with the boxes; and have some good litter near, in order to line around the boxes about eighteen inches high, in case of frost, snow, or severe cold; but remember always to take off the boxes in mild weather, and expose the plants to the mild sun and air as much as possible. As the weather changes, guard the plants as directed before; they will require particular care until the beginning of May, when the boxes may be removed. By this method, you may have roasting ears of corn early in July—three or four weeks earlier than in the common method of planting them. But southern corn will not answer to be brought forward by this method.

32.—*Scorzonera and Salsafy.*

The latter end of this month, you may sow scorzonera and salsafy; the first of these plants is esteemed for its roots only, and the salsafy both for its root, and for the young shoots rising in the spring from the year old plants, being gathered while green and tender, are good to boil and eat in the manner of asparagus. The roots run pretty deep in the ground, and are boiled or stewed, and eat as young carrots.

Let the beds be in an open situation, and sow the seeds in shallow drills, six inches distance, and cover them about half an inch, and then rake the beds. They are to remain where sown, and the plants thinned in May, and left from four to six inches apart.

33.—*Skirrets.*

Skirret seed may be sown thin, on beds of good earth, in drills, and raked in; or they may be propagated by parting the roots, and planting them at six or eight inches distance.

34.—*Chervil and Coriander.*

Sow Chervil and Coriander, for soups, sallads, &c.; sow each separate in shallow drills, nine inches asun-

der, and cover them about half an inch deep. They are to remain where sown, and to be kept clear from weeds; but as the plants soon run to seed, a small portion should be sowed every month.

35. *Rampion.*

Sow the seeds of rampion (for its root) in a bed, in drills, to remain where sowed.

36.—*Spring dressing of Artichokes.*

As soon in this month as the severe frosts are over, rake the light litter from off the artichokes, with which they have been covered, into the trenches, and when the young shoots appear two inches above ground, level down the beds into the trenches, or alleys, rounding them in a neat manner, and at the same time dig and loosen the ground round the plants, and examine them, selecting three of the strongest and healthiest looking shoots, to remain on each plant; all above that number to be slipped off with the hand, close to the root, except they are wanted for new plantations, in which case, any extra number are to remain on the mother plants, until they are about eight or ten inches high, from their junction with the old plants, when they are to be slipped off, and planted as directed in No. 37, leaving only three of the best shoots on each crown, closing the earth in again about the crowns of the roots, and drawing it a little up to the remaining suckers.

This dressing is to be performed, in every part of the United States, when the plants are in the above described state, whether that happens in February, March, or April, occasioned either by the difference of climate, or the forwardness or backwardness of the spring.

37.—*Planting Artichokes.*

In making new plantations of artichokes, select a piece of deep, rich, light loam, that is not subject to retain too much wet in winter, nor to be parched up in summer, having a gentle slope, sufficient to carry

off any moisture that might lodge in the trenches between the rows, for that is much more destructive to their roots in winter, than the most severe frost.

When you have fixed upon a proper soil and situation, lay on it a good quantity of rotten dung, and trench the ground eighteen inches deep, incorporating the manure well therewith, and pulverizing the ground effectually in the digging; then proceed to slipping off the young shoots from the mother stools, with all the roots and fibres they may have thrown out, and close the earth about the remaining shoots. These being provided, pull off any loose hanging leaves, and trim the fibres, then plant them with a dibble about four or five inches deep, in rows five feet asunder, and two feet apart in the row, leaving part of their green tops above ground, and the hearts of the plants free from any earth over them; be careful also to give each plant a little water to settle the earth about its roots.

Or if you have seedling year old plants in a seed bed, you may take them up, and after shortening their tap roots a little, and dressing their leaves, plant them as above.

A plantation of artichokes will continue to produce for five or six years; but if you wish a succession of fruit, you must make a small plantation every spring; the young plants do not produce their fruit, till the crops of the old ones are over.

38.—*Sowing Artichoke Seed.*

There are two principal varieties of the garden artichoke—the French artichoke, and the globe artichoke. The globe artichoke is so far preferred, that it is most generally raised.

Being provided with good fresh seed, prepare a piece of ground as directed in No. 37, and at the distances there mentioned, sow a few grains of seed in each spot, where a plant might be set, covering them about half an inch deep with light, fine earth; when they appear above ground, keep them very clean from weeds, during the summer and autumn. In Novem-

ber, see the method of the winter treatment of artichokes.

Any extra plants that may arise, are to be transplanted into new beds the succeeding spring.

39.—*Cardoons.*

These plants are a species of the cynara or artichoke, the stalks are used, when well blanched, for sallads, soups, and for stewing, &c.

The stalks of the leaves being thick, fleshy, and crisp, are the eatable parts, being first blanched by landing them up like celery, two or three feet high, to render them white, tender, and of an agreeable flavour, otherwise they would be rank and bitter; they are in perfection in autumn and winter.

Towards the latter end of this month, plant these seeds in a bed of rich earth, three or four seeds in a place, and let these plantings be four feet distant from each other every way, cover them about three quarters of an inch deep. As these plants will not well bear transplanting, one of each of those mentioned above, are designed to remain in the spot, where they may be planted, and in June all may be drawn up, except one in a spot, and transplanted in other places.

Should more plants be required to be transplanted, some seed may be sown broad cast on a part of the bed, yet so as not to interfere with the rows, and cover in as before.

Radishes, sallad, or spinach may be sown amongst them, and the beds hoed, and kept clean from weeds, &c.

40.—*Alisanders.*

The seed of alisanders should be sown in October, soon after ripe, for if kept out of the ground till spring, few of them will come up till next season; however, when the seed is sown in spring, let it be done as early as possible, pretty thick, in drills, eighteen inches asunder, cover the seeds near an inch deep. When the plants are up, treat them as celery, that is, blanch them by drawing fine earth around their stems.

It will be best to sow them in autumn, where they are to remain.

41.—*Pot and Medicinal Herbs.*

The latter end of this month, plant thyme, hyssop, sage, lavender, and winter savory, for the edgings of the borders. The suckers, with small portions of roots attached to them, are to be preferred; insert them into the ground, as deep as they will bear, or strip the old roots, spreading out the tops, and planting them deep; observe to water them in dry weather. Or they may be planted in the herbary with the following:

Rue, wormwood, tarragon, tansey, chamomile, common fennel, wormwood, southernwood, feverfew, common fennel, baum, burnet, spearmint, peppermint, officinal scurvy grass, celandine, hoarhound, catmint, angelica, lovage, gromwell, and any other perennial herbaceous plants may be set out in the herbary, by parting their roots or slips therefrom; the best time for doing this, is just when they begin to advance a little in growth.

Towards the latter end of this month, or any time in the next, sow seeds of all the above mentioned kinds, and of clary, smallage, and fox-glove; these three last are biennials, and do not flower until the second year; sow, also, seeds of the following annual plants, viz. borage, sweet fennel, sweet marjorum, sweet basil, summer savory, fenugreek, pot-marigold, anise, and caraway. All these seeds should be sown separately in beds of rich earth, and covered from the eighth of an inch, to half an inch deep, in proportion to their size.

42.—*Dill.*

This seed if sown early in March and thick, a tolerable crop may be expected the same season, but the best time for sowing it, is in autumn, soon after the seeds are ripe; sow it broad cast, and cover it from one-fourth to half an inch with light earth: when the plants come up, thin them to six inches distance.

43.—*Finochio, or Azorian Fennel.*

Make choice of a good spot of light rich earth, not dry, nor very wet, for it will not thrive in either extreme. Sow the seeds thin in shallow drills, about eighteen inches asunder, covering them half an inch deep; when they come up, thin them to six inches distant; about the beginning of July, earth it up as celery, and in three weeks it will be fit for use.

To have a regular succession of this plant, seed must be sown every three weeks during the season. To be managed in winter as celery.

44.—*Capsicums, Tomatas, and Egg-plants.*

You should now sow some seed of each of these in pots, and forward them in the hot-bed, so as to have strong plants ready for planting out in May, as soon as the night frosts shall have entirely disappeared. See April, May, &c.

45.—*Planting out Cabbages, Beets, Turnips, &c. for Seeds.*

As soon as the weather is tolerably mild, in this month, plant out cabbages, beets, carrots, parsnips, turnips, &c. which were preserved during the winter, to raise seed from: plant the different kinds at a considerable distance from each other, as the farina, mixing, when they are close together, changes the seed, so that they cannot be depended upon. Tie up the shoots to stakes, provided for that purpose, as they advance for seeding, to prevent them from being broken down by winds, heavy rains, &c.

46.—*Purslane.*

The white purslane may now be sown on an open border, where it is to remain.

47.—*Planting Early Potatoes.*

Potatoes may be planted for an early crop, as soon as the frost is entirely out of the ground; let the soil be moderately light, advantageously situated, and enrich-

ed with dung. They are to be planted in rows, two and an half feet asunder, nine inches distant in the row, and about three inches deep.

48.—*Horse Radish.*

This plant is best cultivated by cutting from the root, and will grow from the smallest slips. When you have a bed of plants, sufficient to make choice of the finest slips, select those which are without many fibres, (which should all be taken off,) these slips should be six or eight inches long, and will do as well without tops as with them.

Being furnished with these sets, and the ground trenched two spades deep, and well manured, stretch your line along the bed, then with a dibble, make holes deep enough to receive the plants, at about nine inches distance from each other, so that the upper part of the plant shall just come to the surface of the ground. When the whole row is planted, fill up the holes with rotten sifted manure; twelve inches from this, begin a second row, and so on until the bed is planted. Keep the bed clean from weeds, and once or twice in the summer, remove the earth from the roots about six inches deep, and take off all the fibres, which may be produced, and again cover them with fresh; the roots will thus be long, straight, and free from off-sets, and may be taken up the next spring, when many, if not most, of them will be one and an half inches diameter at the crown, and eight or nine inches long; but they will be better to remain for the second year.

49.—*Liquorice.*

The *Glycyrrhiza glabra*, or cultivated liquorice, is a plant of great value to the cultivator.

The liquorice requires a light, sandy, rich soil, which should be three feet deep at least; the ground to be highly manured and well dug the autumn before, that the dung may be perfectly rotted and mixed with the earth. Previous to planting, trench the ground three spades deep, and being furnished with plants taken

from the heads or sides of the old roots, with one or two good buds or eyes to each plant, otherwise they are apt to miscarry; these plants should be from six to ten inches long, and perfectly sound.

The best season for planting them, is when their buds begin to show the first symptoms of vegetation. First strain a line across the ground, then with a long dibble put in the roots, so that the whole plant may be set straight in the ground, with the top about an inch under the surface, and about twelve inches asunder, and two feet distance from row to row, keeping them perfectly clean from weeds during the summer and autumn; in November, carefully hoe and clean the ground; the shoots and leaves being then decayed, cut them off, and spread a little rotten dung on the surface.

In the March following, you should dig the ground between the rows slightly, and carefully avoid injuring the roots. Keep them always clean, and in autumn cut the stalks, &c. and clear them away as before directed.

The same work is to be repeated annually till the plants are three years old, when they will be fit for taking up. After the first or second year, the stalks will shoot so vigorously, as to cover the ground, and greatly retard the growth of weeds.

The proper season for taking up the roots, is November; the manner of doing which, is by trenching the ground, beginning at one side, and opening a trench close to the first row, three or four spades deep, or to the depth of the roots; at which work, three or four spadesmen are generally employed at a trench; one throws out the top spit, the second, the next, another, the third, and the fourth commonly gets to the bottom of the roots, using a mattock occasionally to clear them; he then throws them on the top of the ground, and proceeds in this manner, until the whole is finished.

The small side roots are to be trimmed off; the best divided into fresh sets, and if not planted immediately, to be carefully preserved in earth, till the time

of planting. The main roots are to be washed clean, dried, and tied in bundles for sale.

50.—*Rheum Palmatum, or the true Officinal Rhubarb.*

The true officinal rhubarb is a native of China and Russian Tartary, grows to good perfection in the climate of St. Petersburgh, in England, and Scotland.

The following is the mode of culture :—Having procured a quantity of seed of the true kind, select a piece of light, sandy loam, such as answers for asparagus, which must be treated in the same manner as there directed ; after this, level the top neatly, and lay it out by the line into squares of four feet, at the angles of which, form small circles about six or eight inches diameter, and on each scatter a few seeds, then cover them with light, fine mould, three-quarters of an inch deep. If the seeds had been sown in November, they would vegetate in spring with more certainty. When the young plants appear, keep them free from weeds, and in dry weather give them frequently a little water, but not much at a time ; above all things, protect them from the mid-day sun, till they are considerably strong ; for this purpose, place a piece of board on end, about fifteen inches broad, and two feet and an half high, at the south side of each hill, leaning a little over the plants. The first season is their critical period, having survived that, there will be nothing to fear afterwards. The supernumerary plants (one being sufficient to be left in each of these places) may be transplanted the spring following, into new plantations.

The November following, when the leaves are decayed, cover the crowns of the plants two inches deep with earth from the intervals, and if there is any danger of wet lodging, throw up trenches, rounding the beds, and for the first winter, lay some dry litter over the plants. In March, strip the covering off, until you perceive the tops of the plants ; give the ground a slight digging, and dress it well ; keep the beds hoed and free from weeds.

Thus proceed every autumn and spring, until the roots have stood four years, when some of them may be taken up; but it is admitted, that their medicinal virtues improve, until they are eight or ten years old.

The proper time to take up these roots for use, is in autumn, after the leaves and stalks are decayed.

51.—*Rheum Rhaponticum, or Common Rhubarb.*

This may be propagated by seeds or off-sets; they are to be sown or planted about two feet apart each way. When the leaves make their first appearance in the spring, they come forward as round balls, the size of a large hickory nut, and are nearly equal to gooseberries for tarts, &c. Its roots afford a gentle purge, but it is inferior to the former.

52.—*The Jerusalem Artichoke.*

The Helianthus tuberosus, or tuberous rooted sunflower, commonly called the Jerusalem artichoke. They are raised by sets or cuttings of the roots, preparing and planting them as potatoes, in rows three feet asunder, four or five inches deep, and eighteen inches distant in the rows. They increase abundantly, will thrive in any tolerable soil: the ground cannot be easily cleared from them, as the smallest piece will grow.

Southern States.

This is the principal month in the southern states for gardening; all manner of work hitherto directed, may now be performed there, in the open gound, successfully. In South Carolina, Georgia, &c. they may now sow the seeds of melons, cucumbers, squashes, tomatas, egg-plants, okras, capsicums or red-peppers, &c. See April and May.

FOR APRIL.

AS it is the desire of all who have gardens, to raise their crops as early as possible, either for family use, or for sale, it will be necessary to offer some observations to the inhabitants of the eastern, as well as the middle states of America.

1. In the eastern states, generally, and in such parts of the middle states, as the ground is of a heavy binding nature, March will be often too early to admit of general crops being put into the ground, and therefore, in such case, it must unavoidably be deferred till this month. Observe always to sow the hardy kinds as early as the season, situation, and soil will admit of, in order that the young plants may be established, before they are overtaken by the summer heat and drought; but a stiff or moist soil should never, on any account, be worked, before it becomes so dry as to fall to pieces in the spading, nor delayed, till it binds and becomes hard. When this precaution is not attended to, a clayey tough soil never fails to bind, when drought follows; and it is also impervious to the moderate rains and dews, and is not susceptible of the genial influence of the sun and air, and thereby the plants are materially injured, if not totally destroyed.

2. A light, sandy soil will be rather benefited by working it when moist, as this will have a tendency to render it more compact, and consequently more retentive of moisture.

3. That earth which has the property of retaining water the longest, *without becoming hard when dry*, is,

of all others, the best adapted for raising the generality of plants in the greatest perfection. This is called loam, and is a medium earth between clay and sand.

4. In order to improve a stiff clay soil, it is necessary to coat it well with sandy earth, pond mud, and such composts as may tend to open its pores, and separate its particles, that it may easily discharge any superabundance of moisture, and cause it to approach as near as possible to a loam, which may be greatly assisted by throwing it up into high ridges, either by the plough or spade, and thus exposing it to the full effects of the winter frosts and summer heat, which it effects by the expanding of the particles of water, and also separating those of the earth, crumbling and pulverizing it more effectually than art can accomplish.

5. A sandy soil should have such dressings of clay, cow dung, soap boiler's ashes, and other kinds of manure, as will have a tendency to bind and make it more compact, and consequently more retentive of moisture.

6. Notwithstanding, where the ground may be of such a nature, as not to admit (at the first commencement in making the garden) of putting the seeds therein, as early as those may, who have a loamy soil, yet by attending to the foregoing observations, the soil may be so meliorated and improved, as to produce earlier and better crops in future.

7. The gardener may not consider it improper again to be reminded, that the best criterion, for the time of cultivating his ground, is when the frost is entirely out of it, and, when in digging it, it can be pulverized by the spade; this rule will apply in every part of the Union, with this proviso, that when there is almost a certainty of a severe frost, after a series of mild weather, although the ground ought to be trenched, manured, and prepared as before directed, yet none but the hardy plants and seeds must be put in the ground too soon.

1.—*Care of Cucumbers, Melons, &c.*

Examine your cucumber and melon beds, and if any have declined in heat, especially in the early part of the month, line them with fresh dung, as directed in page 11.

As the sun has now become powerful, all kinds of plants which you have in hot-beds, will require abundance of air and occasional shade; for if the beds were left close shut, only for a few hours during the prevalence of a hot mid-day sun, the whole would be ruined; therefore, you ought never to leave the garden at such times, without first raising the glasses; and giving shade to the plants, if necessary.

2.—*Making new Hot-beds for Cucumbers and Melons.*

In order to have a succession of cucumbers and melons, in the early part of this month, make new hot-beds, either for the reception of the plants, or for sowing the seeds, observing the direction given in former months, as well for these, as the attention to their fruiting, and also the care which other hot-bed plants require.

3.—*Making Hot-bed Ridges for Cucumbers and Melons.*

Make hot-bed ridges about the middle of this month, for the cucumber and melon plants, raised last month, in order to be planted under hand or bell glasses; for this purpose, make trenches three feet wide, and two deep, in a warm, dry part of the garden, and fill them to the surface with good fresh horse dung, then they may be either earthed up directly, or in two or three days after, when the dung will be settled, and the heat arisen to the top of the bed, laying from seven to nine inches thick of light, rich earth over every part; then smooth the surface, lay on your hand or bell glasses in the middle of the ridge, four feet asunder, and keep them close down, till the dung has thoroughly warmed the beds, then set the plants in.

Two strong melon plants, or three cucumbers, may be planted under each glass; remove and plant them, if possible, with balls of earth about their roots.

As soon as they are planted, let them be moderately watered, and directly set on the glasses; if sunny weather, and the sun is powerful, shade them a little with a mat over each glass; repeat the waterings occasionally, once or twice a week, according to the degree of warmth in the bed, and temperature of the weather, but let this be moderately done.

When the plants have taken well, and grow freely, give them plenty of air, by raising the glasses on one side, and when they have grown so large as to run out under the glasses, let these be raised on brick-bats, stones, or pieces of wood, to give full liberty to the plants, and do not take them off totally till towards the end of May.

Cucumber and melon seeds may be sown about the middle of this month, on ridges, and protected with glasses; these will be much earlier, than if sown in the beginning of May in the open ground.

4.—Planting Cauliflowers,

In the middle states, in order to have cauliflowers in good perfection, you must be provided with stout, early plants, such as are strong, and perfectly fit for planting out, early in this month; being furnished with these, select a piece of very rich loam, rather inclining to moisture, but by no means wet; give it at least four or five inches deep of well rotted cow dung, or if this cannot be had, other old manure; dig or trench it one spade deep, incorporating the manure well therewith.

Then, in the first week of this month, take up the plants with a transplanting trowel, one by one, preserving as much earth as possible about their roots, and plant them down to their leaves, in rows about three feet asunder, and the same distance plant from plant in the rows, forming a small hollow about eight inches over, and two deep, round every plant, to receive water occasionally, till fit for earthing up. After planting, give each a little water, which repeat at intervals of three or four days, till they are in a vigorous growing state, and afterwards occasionally.

You should be provided with covers made of boards, a foot long, nailed together at right angles, to cover every plant at night, and in very severe weather, for two or three weeks after planting, observing to take them off early each morning, except in severe weather.

This occasional protection is necessary, to keep them in a constant state of vegetation, for if checked at this period with frost, very few will produce large flowers.

The foregoing instructions will answer for any part of the Union, except as to the time of planting, which in every place should be on the eve of the first brisk spring vegetation, when no danger is to be apprehended from subsequent frosts, and where this can be done in December, January, or February, so much the better.

5.—*Sowing Cauliflower Seed.*

Cauliflower seed may be sown at any time this month, in the open ground, to raise plants for heads in October, &c.

For their treatment, see May.

6.—*Planting out Cabbages.*

As early in this month as possible, plant out your general crops of cabbage plants; set all the early heading kinds at the distance of two and an half feet every way, and all the late sorts three feet.

7.—*Sowing Cabbage Seeds.*

Now sow a general assortment of cabbage seeds in open borders, such as the early York, early sugar-loaf, and early Battersea, to succeed those sown in March; the large late Battersea, late large sugar-loaf, flat Dutch, drum-head, large English, large Scotch and Savoys, for autumn and winter use; sow also the seed of the red pickling cabbage.

8.—*Borecole, or Fringed Cabbage.*

The varieties of this are—1st, green curled, 2d, red curled, 3d, thick leaved curled, 4th, finely fringed, 5th, Siberian or Scotch kale.

These may be treated in every respect as winter cabbages; they are extremely hardy, and rendered more tender and delicious by smart frost.

9.—*Turnip Cabbage, and Turnip-rooted Cabbage.*

The turnip cabbage produces its bulb on the stem above ground, immediately under the leaves. It is to be eaten when young, and about the size of a garden turnip.

The turnip-rooted cabbage has an oblong root, much in the form of the winter radish, but very large. It is extremely hardy, and very seldom injured by frost.

These kinds may be now sown, and treated like cabbages, or sown like turnips, and hoed to proper distances.

10.—*Brussels Sprouts, and Jerusalem Kale.*

The Brussels sprouts is an open headed cabbage, grows very high, and produces a great quantity of excellent sprouts in spring.

The Jerusalem kale is one of the most hardy of the cabbage tribe, it never heads, it bears a very severe winter, and affords an abundant supply when many others perish.

Both these kinds are cultivated in the same manner as cabbages, and when planted in a gravelly soil, they will best stand the winter frost.

11.—*Broccoli.*

The broccoli, in all its varieties, is only a late heading cauliflower; two of the varieties are, the Roman or purple, the Neapolitan or white, these two are most esteemed. The seeds should be sown in the early part of this month, and when of sufficient size, pricked out into beds four inches apart, and watered; there to remain, until planted in the quarters, where they are to produce their flowers.

In such of the southern states, where the winters are not severe, they will stand in the open ground, and continue their fine flowers from October to April.

12.—*Peas.*

Continue to sow successional crops of peas every ten days or two weeks.

The dwarf sugar, and dwarf Spanish peas, may now be sown; they are plentiful bearers, and do not rise high. To be sown thin, in drills two feet apart, and covered about two inches.

Leadman's dwarf pea is perhaps the most prolific and profitable; it bears abundantly, and grows to the height of two to two and an half feet. Some do not stick these dwarf sorts, but they yield more abundantly for this trouble. Sown as the last.

The tall crooked sugar pea may now be sown; it requires rods seven to eight feet high; to be sown in drills four or five feet asunder.

Peas should always have earth drawn to them, for the first time, when the plants are about three or four inches high. Be careful to stick them when five or six inches, and give them a second earthing on both sides.

13.—*Planting and earthing up Beans.*

If a succession of the large podded bean, commonly called the Windsor bean, should be desired, you may now plant the Genoa sort, as it bears our summer heat better, than any of the rest. Such beans as have grown to the height of four or five inches, must have some earth drawn to their stems, to refresh and strengthen them.

14.—*Purslane, white kind.*

Sow more white purslane seed, on a warm border.

15.—*Lettuce.*

Transplant lettuces of every kind, that require it, where they stand too close; plant them ten or twelve inches each way, water them immediately, and repeat it occasionally in dry weather, until they have taken good root.

Sow a variety of the best kinds, for a succession, once every two weeks. See March.

16.—*Small Sallading.*

Sow small sallading every week or fortnight, as directed last month; water them moderately, if the weather should be dry.

17.—*Radishes.*

Sow the different sorts of radish seed every ten or twelve days, for a constant supply.

Thin those which have been sown, and are too thick, leaving the plants about two or three inches asunder, and clear them from weeds.

Turnip-rooted radishes, of both the white and red kind, should now be sown.

18.—*Spinach.*

Continue to sow the round smooth seed spinach every ten or twelve days, as directed in last month. Hoe the spinach sowed heretofore, and thin the plants to three or four inches.

19.—*Carrots.*

Carrots may be sown the beginning of this month, for a full crop. See March.

There are several varieties of the garden carrot, differing in the colour of their roots, such as the orange, white, yellow, and dark red.

The horn carrot is another variety, which is the earliest root, of an orange colour. They all thrive best in a rich, deep, sandy loam. The large orange carrot is the best and most productive for a principal crop.

20.—*Parsnips.*

Parsnips may be sown the beginning of this month; but if later, they will not succeed so well.

21.—*Celery.*

The young celery plants, produced from the seeds sown in February and March, for an early crop, will be fit to prick out now into a nursery bed of light rich earth. When the ground is prepared, form it into beds, and rake the surface smooth; then take the best plants from the seed bed, and plant them into the above, at about three inches distance; give a gentle watering, and repeat it occasionally, until the plants have taken fresh root.

Sow some more celery seed, in the first or second week of this month, in a bed of rich light earth, for a general crop, to succeed those sown in March. In dry weather, both before and after the plants come up, give frequent moderate waterings.

22.—*Leek Seed.*

You may sow a principal crop of leek seed, and when arrived at full size, they may be landed up as celery.

23.—*Turnips.*

You may sow any time this month, a full summer crop of the early Dutch, early stone, or early green turnips. Let the ground be well dug and manured sufficiently, sow them tolerably thin, and rake them in lightly and evenly.

Hoe and thin the turnips, which were sown last month, leaving the plants six, seven, or eight inches distant from each other, according to the richness of the soil.

24.—*Nasturtium.*

The *Tropæolum majus*, or large nasturtium, is deserving of cultivation, as well on account of its beautiful orange coloured flowers, as their excellence in sallads. The green seeds of this plant, make one of the nicest pickles. There are a major and a minor kind. The former being most productive, is the proper sort.

A drill may be drawn for them, and the seeds dropped therein, two or three inches from each other, and covered with earth near an inch deep. When they are about six inches high, they should have sticks placed for them to run upon.

25.—*Okra.*

The middle or latter end of this month, is a proper time to sow the seed, in the middle states, and in the eastern states, the early part of May; or generally it may be sown with certainty of success, at the time that Indian corn is planted. Draw drills about an inch deep, and four feet asunder; drop the seeds into these at the distance of eight inches from one another. As they advance in growth, earth them up two or three times. The green pods are used in soups, and the ripe seeds, burned and ground, are by many used instead of coffee.

26.—*Capsicums, or Red Peppers.*

Sow capsicums towards the end of this month, on a warm border, to produce plants for planting out towards the latter end of May, or beginning of June. In the eastern states about the middle of May will be soon enough to sow them in the open ground.

27.—*Tomatas, or Love Apples.*

The seeds may, towards the latter end of this month, be sown in a warm border, and about the end of May, will be fit to plant out in the place, where they are intended to remain for fruiting. They will require such support as directed for nasturtiums—No. 24.

28.—*Egg-Plant.*

There are two varieties of this plant, the white fruited and purple. The seed may be sown on a slight hot-bed, the beginning of this month, or in March, and towards the middle or latter part of May, in a rich, warm piece of ground, the purple at the distance of two and an half feet asunder every way, and for the white kind, two feet; and if kept clean, and a little

earth drawn up to their stems, about a foot high, they will produce plenty of fruit.

28.—*Indian Corn.*

Should the early Canada corn, directed to be planted in last month, be injured, you may now plant a few hills, and treat it as there directed in page 51.

29.—*Sowing Cucumbers, Squashes, Musk and Water Melons.*

In the middle states, where the ground is light, dry, and warm, in the last week of this month, cucumbers, squashes, musk and water melons may be sown for an early crop. Should the weather prove favourable after they are up, and they are not attacked with frost, they will succeed very well, but if you have hand or bell glasses to protect them, there is no doubt of succeeding.

30.—*Endive.*

Some endive may now be sown, as directed in June, and blanched, when fit, as directed in July.

31.—*Sorrel.*

Sow now a sufficient supply of the broad leaved garden sorrel, and also of the round leaved or French sorrel; these may be sown in shallow drills, and lightly raked in. When the plants are up, keep them clean from weeds, and in June thin them to the distance of nine inches every way.

32.—*Garden Orache.*

The *Atriplex hortensis*, or garden orache, is used as spinach. The green-leaved is one which is cultivated as an esculent herb, it is sown at the same time, and treated in every respect like spinach.

33.—*Caraway.*

The common caraway is a biennial plant; it produces seed the second year after sowing, and then generally dies. It may be sown on a bed in drills, and

covered half an inch deep. When it is up, thin the plants to six inches distance.

34.—*Destroy Weeds.*

Weeds will now begin to appear plentifully in every part of the garden; the utmost diligence should be used to destroy them, while they are young, before they overpower the crops, especially towards the middle and latter end of the month.

Pay particular attention to your small crops, at this time, such as carrots, parsnips, &c.; weeds grow much quicker than they do, and if not wed in time, your crops may be destroyed.

Take the opportunity of dry weather to hoe the ground between the rows of beans, peas, cabbages, cauliflowers, and other crops, that stand wide, to destroy the weeds.

35.—*Madder.*

The *Rubia tinctorum*, or dyer's madder, is an article of much importance in manufactures. The plant has a perennial root, and an annual stalk. The root is composed of many thick succulent fibres, like the roots of asparagus, and strike very deep into the ground, being sometimes more than three feet in length.

The land best adapted to the culture of madder, is a deep, loamy, substantial soil, not too stiff and heavy, nor over light and sandy; this should be twice ploughed in autumn, and left rough in winter, that the frost may mellow and pulverize it, then ploughed again in April, taking care every time to plough it as deep as possible.

The time of planting is about the latter end of April, or immediately when the young buds begin to appear above ground. The young shoots are then taken from the sides of the mother plants, with as much root as possible, and are planted in rows three feet asunder, and twelve inches distant in the rows, plant from plant, observing to set each slip down to its top or crown; keep the ground clean from weeds.

In November, the haulm being decayed, cut it down, and take it off, then draw three or four inches of earth over the crowns of the plants; this may be performed either with the plough or hoe, and let them remain so all winter.

The second year in the beginning of April, the earth on the top of the rows, should be carefully taken off and raked, to destroy the young weeds, and make the surface smooth and mellow, as also to permit the rising buds to shoot freely.

The second summer, the same care must be taken of the madder, as the first, and in November the crowns of the roots are to be covered as in the preceding year.

The madder roots should never be taken up, till they have had three summers' growth, and the culture of the third is the same as of the second year, during the spring, summer, and autumn.

In September or October, of the third year, when the haulm is perfectly decayed, the roots are to be carefully taken up, and dried for a few days in the air, they are afterwards put in a kiln, and dried effectually with a slow heat.

Madder may be cultivated from seeds, by sowing them in rows, as directed for the plants. Sow three or four seeds, where a plant should grow, and cover them a little more than half an inch deep; when grown an inch or two, pull out the weakest and leave the best to remain at proper distances, for full growth.

For further information, see Miller's Gardener's Dictionary, last edition.

36.—*Fuller's Teasel.*

The *Dipsacus Fullonum*, or Fuller's teasel, is cultivated for the purpose of raising the nap on woollen cloths, by means of the crooked awns upon the heads. The heads are collected in August, as soon as they begin to turn brown, and exposed daily to the sun, till they become perfectly dry, care being taken to protect them from rain.

This plant is propagated by sowing the seed in April, upon a soil, that has been well ploughed, and it is observed that good, strong wheat land is well adapted for the production of teasels. The ground being ploughed and made fine, a peck of seed may be sown on an acre, and harrowed in with a light harrow. When the plants are up, hoe them in the same manner as practised for turnips, cutting down all the weeds and singling out the plants to six or eight inches distance; as they advance, and the weeds begin to grow again, hoe them a second time, cutting out the plants to a foot or more asunder. Keep them free from weeds during the summer and autumn, and the second year after sowing the plants will shoot up stalks with heads, which will be fit for collecting in August; observing that they are to be collected as they turn brown and ripen, and not all at once.

They may also be cultivated by sowing the seeds in April, in a seed bed, pretty thick, where they are to be kept free from weeds, and in the September or March following, planted out where they are to remain, and set regularly in lines fourteen or eighteen inches every way; soon after, they will shoot up, and in the autumn following, produce their heads. This article is indispensible, where manufactories of cloth are carried on, and those who have raised them, say they are propagated in the United States to greater perfection, than in Europe.

37.—*Woad, Weld, or Dyer's Weed.*

The *Reseda Luteola*, or dyer's weed, is used for dying all sorts of bright yellows, and lemon colours. Its favourite soil is a tolerably rich sandy ground, where it will grow to great perfection. The seed should be sown in April, at the rate of two quarts to the acre. When the plants are up, they must be wed with the hoe, like turnips, to the distance of six inches, plant from plant, and kept free from weeds during the season. The following May they will shoot, and if the soil be good, grow three feet high; and in June, when in full flower, they

may be tied in bundles and housed; put them up loosely, that the air may pass freely between them, to prevent fermentation. A small patch may be left for seed, which is not to be pulled up, till perfectly ripe.

38.—*Onion Seed.*

Onion seed, to be raised for bulbs for next year's planting out, should be sown, towards the latter end of this month, in a lean or gravelly soil; sow the white and red separate, in the broad-cast way, and hand weed them.

FOR MAY.

1.—*Early Melons and Cucumbers.*

THE early melons will now show fruit abundantly; they must have plenty of air, and be screened from the mid-day sun for three or four hours. About the middle of the month, the glasses should be entirely taken off, and the plants exposed to the open air; in the middle states, the frames may be taken away, in order to allow the plants room to run. As the melons set, place a piece of shingle under each fruit.

A regular supply of water will be very necessary, and although melons do not require as much of it as cucumbers, yet a sufficiency must be given.

The early cucumbers will now be in full fruiting, and will require plenty of air and water; they may be fully exposed to the open air, in the middle states, about the middle of the month, and in the eastern states, about the end of it.

2.—*Hot-bed Ridges for Cucumbers and Melons.*

Cucumbers and melons, which were sown last month or late in March, may, in the first week in this, be planted in hot-bet ridges, as directed in page 64, or the seeds may be sown therein. Mark out the holes for the seed, four feet asunder, in the form of a shallow basin, about an inch deep, and nine or ten inches wide. In the middle of each, sow eight or nine seeds, and then put on the hand glasses. After the plants have

been up ten or twelve days, they must be thinned, leaving only two or three of the strongest in each hole, drawing a little earth about their stems, and give them a gentle watering. When the plants have two rough leaves, they may be pruned or stopped, as directed in page 27. This operation causes them to produce fruit, without running too much to vine, and although it is not necessary to perform this to those, which are planted in the open ground in the middle states, yet if the gardener desires his plants to be kept within certain limits, it should be performed. Water them, &c. as directed in No. 1.

3.—*Sowing Melons and Cucumbers in the open ground.*

From the first to the tenth of this month, will be a suitable time, to plant a general crop of melons and cucumbers in the open ground; from a week to a month earlier, to the southward, and about the middle of the month, in the eastern states. A general remark is, that musk and water melons, cucumbers, pumpkins, squashes, gourds, and all their varieties, may be sown at the time of planting Indian corn; but for garden culture, an earlier time will answer.

For the varieties of the musk and cantaleupe melons, prepare a piece of rich, sandy ground, well exposed to the sun, manure it, and give it a good digging, mark it out into squares six feet every way; at the angle of every square, dig a hole twelve inches deep, and eighteen over, into which put seven or eight inches deep of old hot-bed dung, or very rotten manure; put thereon about four inches of earth, and mix the dung and earth well with the spade, then draw the remainder of the earth over the mixture, so as to form a round hill about a foot broad at top.

When your hills are all prepared as above, plant in each, towards the centre, eight or nine grains of melon or cucumber seed, each at some distance from the other, for if planted near each other, the melons will be injured; the seeds to be set about two inches from one another, and covered about half an inch deep.

When the plants are up, they may be pruned or not, at pleasure. As the flies will be very troublesome, they must be killed as much as possible, three times a day, and where they have destroyed any of the plants, fresh seed may be put in the ground in their places.

4.—Squashes.

Squashes of every kind may be cultivated as cucumbers, and sown at the same time, at the distance of eight or nine feet every way.

5.—Water Melons.

In order to have water melons in perfection, fix upon a piece of very light, rich, sandy soil; manage it in every respect, as directed for cucumbers and melons; let the hills be distant nine or ten feet every way.

6.—Pumpkins and Gourds.

Pumpkins will require to be ten feet distant from hill to hill, two or three plants in each; they will grow freely in any dry and tolerable rich ground, and to be sown, at the time melons and cucumbers are, in the open ground, and kept free from weeds.

The ornamental kinds may be sown, where they can be trained to trellises.

Where melons, cucumbers, squashes, pumpkins, &c. are to be cultivated on a large and extensive scale, the ground may be prepared with a plough, and afterwards ploughed and harrowed between the plants, until they begin to run, when the hoe must be used.

7.—Sweet Potatoes.

The sweet potatoe requires a very light, sandy, and tolerably rich soil, to bring it to perfection. The time to plant, in the middle states, is from the first to the tenth of May. The ground being well pulverised by ploughing and harrowing, &c. is afterwards laid out in squares of four or five feet each, and at the intersections of the furrows, hills are made, in the manner directed for cucumbers, &c. page 78; into each of

these, one or two good sets are planted, and covered about an inch and an half deep; as they advance in growth, the hills are enlarged, by cross ploughing the ground; harrow it with a very narrow harrow, and then round the hills with a hoe. Constantly keep them clean from weeds, and the frequent enlargement of the hills will increase the size and number of the roots. In gardens, the work may be performed with a hoe.

8.—*Indian Corn.*

Procure some of the early corn as directed in page 51; it may now be planted in the open ground, and treated in the manner of common crops, planting it at the distance of three feet every way. This is designed solely for gardens, as this sort does not grow more than six feet in height.

9.—*Early Cauliflowers.*

Early cauliflower plants, as they advance in growth, should have the earth drawn up about their stems, and in dry weather, occasionally watered.

Towards the latter end of the month, the plants will begin to show their flowers, when they should frequently be looked over, and as they advance in flower, let some of the leaves be broken down over them, to protect them from the sun and wet, as also to preserve them in their natural colour, firmness and beauty.

10.—*Planting Cauliflowers.*

The plants from the late spring sowings should now be planted out, as directed in page 37. In October, you may expect fine heads from these.

11.—*Sowing Cauliflower Seed.*

You may now sow cauliflower seed for a late crop. The plants from this sowing, which do not produce heads before November, may be then taken up, and managed as directed in that month, by which means they will continue to produce fine flowers all winter.

12.—*Cabbages.*

Draw earth about the stems of the early cabbages. The earliest, towards the middle or latter part of this month, will begin to form their heads; when they may be greatly forwarded, by tying their leaves together, with bass, or shreds of Russia mats; gather the leaves up regularly, but do not bind them too close, only treat a few of the earliest of them in this manner, the remainder will come on and be better without this.

Continue to plant out your spring cabbage plants, for autumn and winter. Plant also, at this time, a full crop of red pickling cabbage and savoys.

Let all be planted out, if possible, in moist or cloudy weather, and immediately after, give each a little water, unless the ground be fully saturated.

Sow now, as directed in page 66, some early York, sugar loaf, &c. for summer and autumn use; likewise savoys, large drum heads, flat Dutch, &c. and red pickling cabbage, for autumn and winter. Transplant young seedlings, watering them immediately, and shade them for a few days.

13.—*Borecole.*

You may now sow a principal crop of green and red curled Borecole, for autumn, winter and spring use, see page 66.

Towards the end of the month, those sown in April, should be planted out into beds of rich, sandy soil, as directed for cabbages, at three feet distance every way, and kept clean from weeds. Those intended for winter use, should never be planted in a rich soil, as they would not then be able to bear the frost so well, as if growing in a gravelly soil.

14.—*Brussels' Sprouts, and Jerusalem Kale.*

The Brussels' Sprouts and Jerusalem kale, to be managed as the Borecole.

15.—*Turnip Cabbage, and Turnip rooted Cabbage.*

The seed of the turnip cabbage, may now be sown, and the plants afterwards treated as directed for cabbages; but do not earth them above the swelling bulb or stem. The turnip rooted kind, should be sown on a bed of strong rich ground, and treated as turnips. Thin the plants with the hoe, to the distance of 16 inches apart.

The early sown plants may now be planted out.

16.—*Broccoli.*

The early sown broccoli plants should now be planted out, into beds of good rich earth, in an open situation, at the distance of three feet every way.

Broccoli seeds should be sown early in this month, for a second principal crop, for winter and spring use. On the opening of the spring, plant out the stalks of the purple kind, and they will produce abundance of sprouts. See November.

17.—*Management of Beans in blossom.*

The early mazagan, long podded, Windsor bean, &c. should be topped, when arrived at full bloom, and the lower pods beginning to set. The early mazagan bean may be topped, when about two feet high, and the larger sort, when about three feet high; this may be done with the finger and thumb.

18.—*Sowing Peas.*

A few of the early hotspur peas, where a succession is wanted, may be sown twice this month.

19.—*Transplanting Lettuces.*

In moist weather, transplant such of the lettuce, sown in the two former months, as are fit, not near trees, but in the open ground.

Dig the ground neatly, and rake the surface smooth, then dibble in the plants, in rows, ten or twelve inches asunder, and the same distance from one another in the rows: water them immediately, and repeat it occasionally, until they have taken root.

Such as are intended to remain for heading, where sown, should now be thinned to about ten or twelve inches every way.

20.—*Sowing Lettuce Seed.*

Lettuce seed of various kinds, may now be sown, two or three times, this month, for a constant supply. The different heading kinds, also, the Aleppo and Egyptian cos which do not head like the other kinds; but if tied up, as endive, they will blanch, and be very crisp. The various kinds of cos, which are now beginning to gather and whiten in the heart, should be tied up with strings of the Russia mats, only a few at once.

21.—*Sowing small Sallading.*

Sow a variety of small sallading, every week, or ten days; for these shoot to seed at this season very rapidly; such as cresses or pepper-grass, &c. Sow the seeds, at this season in shallow drills, on shady borders, cover them lightly, and give them occasional waterings.

22.—*Kidney Beans.*

A principal crop of kidney beans should be planted, in the first week of this month, and successional crops, about the middle, and also towards the end.

Any of the dwarf kinds may now be planted. The cream-coloured, brown speckled, yellow, and white, are the earliest sorts, and should be chosen for the first crop.

Let double drills be made for them, with a hoe, about two and a half feet asunder, and an inch and an half deep; drop the beans therein, at the distance of two or three inches from one another, draw the earth smoothly over them.

The various kinds of running beans, may, also, now be sown in drills, four or five feet asunder, and the seeds planted double the distance of the dwarf sort, from one another. When the plants come up, and their runners begin to shoot, let some tall sticks, or poles, be placed to each row, for them to climb upon,

they will soon take hold, and twine themselves around the poles, to the height of eight or ten feet, or more.

The Scarlet runner, though in some of the eastern states it produces plentifully, in the middle states seldom produces much, and is only cultivated for the beauty of its flowers.

23.—*Carolina and Lima Beans.*

The Carolina beans may be planted in the first week of this month, and treated as directed for the running kidney beans.

The Lima beans, should not be planted, in the middle states, before the middle of the month, when vegetation is very brisk, for they are subject to rot, if planted in cold weather, when the ground is moist. They should have a light, sandy, rich soil, and be planted in hills at the distance of six feet, from hill to hill, four or five beans in each hill; and the poles for their support, ought to be strong, and near ten feet high. Both these kinds are very productive, will continue bearing, till overtaken by frost, and are very delicious.

24.—*Radishes.*

Hoe, or weed, and thin the advancing crops of radishes as directed in page 69. Continue to sow a fresh supply, every two weeks.

25.—*Planting Radishes for Seed.*

Transplant radishes for seed when the roots are just in their prime; set them in the ground in showery weather, if possible, if not give them frequent waterings. Choose for this purpose, some of the best kinds, long, perfectly straight rooted, and with short tops; those of a clear pale red, and those of a deep purple, are to be preferred.

Plant the roots by dibble, in rows four feet asunder, and one foot in the row, in an open situation, and give them a good watering immediately after.

Select also, some of the best formed white and red turnip-rooted radishes, of moderate growth, hoe out

the others, and let these remain for seed; or if necessity requires, you may transplant them; in that case, plant the bulbs in the earth, leaving the tops free, and water them.

26.—*Spinach.*

Weed and thin the spinach sown last month; and of the early crops, both of the round-leaved and prickly seeded kinds, leave a sufficiency, both of the male and female plants, for seed.

If a continuation of spinach is required, sow more of the smooth seed.

27.—*Cleaning and thinning Carrots and Parsnips.*

Carrots may now be well cleared from weeds, and the plants thinned to about six or seven inches apart. Parsnips should also be attended to in like manner, and thinned to from eight to ten inches asunder, and the ground hoed between them.

28.—*Planting out Celery.*

Some of the early celery plants, from the seed-bed, should now be pricked out, to obtain strength, previous to a final planting in trenches. They should be planted at the distance of three inches from one another, in beds of rich loose earth, watered immediately, and afterwards occasionally, till they grow freely; and when they have acquired sufficient strength, they are to be planted in trenches, as directed in June.

29.—*Sowing Celery Seed.*

Sow more celery seed for a principal later crop; shade them in hot sunny weather, and give them occasional waterings.

30.—*Asparagus.*

Asparagus is in the best state for cutting, when the shoots are from two to four inches above ground, and the buds are close and compact. Keep the beds free from weeds, and discontinue the general cutting, as soon as the stalks appear small and weaker than usual,

as it would exhaust the roots, aud injure the next year's produce.

31.—*Beets.*

Weed the early beets, and thin them to eight or nine inches, plant from plant. Continue to sow some of the red beet seed in drills, agreeably to directions in page 48.

32.—*Roota Baga, or Swedish Turnip.*

The *Roota Baga* is more of the species of the turnip-rooted cabbage, than the common garden or field turnip. If the seed has not been sown in the last month, it may be sown, in the broad cast way, early in this. As the plants advance in their growth, they should be hoed out to the distance of about sixteen inches every way; they will continue increasing in size, till late in autumn, when, if not used before, they may be taken up, and preserved through the winter, in like manner as turnips; they are more hardy, will keep better, and be as fresh in May, as at Christmas.

The flesh of the root is yellow, sweet, and firm, being nearly twice as heavy, as the root of the common turnip of the same size. It is by many people preferred to the common turnip.

33.—*Onions.*

The onions which were sown at an early season, with an expectation of their growing to a sufficient size the first year for table use, should now be perfectly cleared from weeds, and the plants thinned to about three inches from each other; some of them should be pulled out at an early period, and kept clear of weeds, from the first sowing, till they arrive at perfection.

Onion seed may be now sown broad-cast, on rather a poor soil, to raise small bulbs for the next year's crop, and if the ground should be very dry, you may water them occasionally.

34.—*Turnips.*

Hoe and thin your turnips, and sow some more of the early Dutch, in the beginning of this month, for a succession. The sowing should be performed immediately after rains; sow them thin and even, and rake the ground smooth.

35.—*Hamburg Parsley, Scorzonera, and Salsafy.*

The large rooted parsley, scorzonera, and salsafy, must now be carefully cleaned from weeds, and thinned to about six inches asunder.

Early in this month, sow principal crops for autumn and winter.

36.—*Capsicums, or Red Peppers.*

Early in this month you may sow, in a bed of rich earth, seeds of the various kinds of capsicums; the large flat kind, commonly called *bull-nose*, is that which is preferred for pickling. These plants may be planted out in rows, about the first of June.

The early plants raised in hot-beds, should, in the middle states, be now planted out, where they are to remain, taking the advantage of moist or rainy weather. The rows to be two feet asunder, and the plants eighteen inches apart in the rows. When planted, give each some water occasionally, to be kept free from weeds.

37.—*Tomatas.*

Sow the seeds of tomatas in the first week in this month, on a warm sandy soil, to remain for fruiting, or they may be transplanted, as directed in page 71. Plant out from the hot-beds, about the middle of this month, those plants, which are forwarded therein, about two feet apart, and provide supports for them to run on; or they may be trained to fences, as they run greatly, if kept clear of weeds.

38.—*Momordica, or Balsam Apple.*

There are two species of this plant, the large and the small.

The large balsam apple is a great runner, and requires a trellis twelve or fourteen feet high to run on, in order to support it in the best manner; it will require some assistance in training it with strings. When it begins to produce fruit, the appearance is beautiful; they are sometimes from twelve to fifteen inches in length, and as they begin to ripen, are of a high, rich orange colour, and are much admired in our markets, though as a vulnerary, the smaller kind is preferable.

The seeds of the large sort (as well as the smaller) should be planted about the middle of this month, where they are to remain, as they do not bear transplanting; the soil should be very fine and rich. Put four or five seeds in a place, and if they all come up, permit two only to stand; should they be intended to form an arbour, others may be planted at three or four feet distance, and attended to in like manner; or they may be planted and treated as Carolina and Lima beans, and supported by long poles. See page 84.

The smaller kind may be planted as the above, and when they appear above ground, fix sticks four or five feet high, for them to climb upon.

39.—*Egg-Plants.*

About the middle of this month, you should set out, for fruiting, the early plants, which were forwarded in the hot-beds. A rich sandy soil is the most suitable for them. Plant them two and an half feet asunder. As they advance in growth, draw some earth about their stems; keep them clean from weeds.

40.—*Endive.*

Some endive may now be sown for an early crop; but at this season, it is very apt to run to seed, and towards the latter end of the month, more may be sown. The white and green curled endive are the sorts to sow now. When the plants are about three inches high, they should be transplanted into beds, at the distance of ten or twelve inches from each other, and immediately watered.

41.—*Okra.*

The first week in this month will answer to sow a full crop of okra, as the seeds will now vegetate freely, and grow rapidly. For the method, see page 71.

42.—*Supporting Plants for Seed.*

Now support the stems or stalks of such plants, as were planted for seed. The onions, leeks, beets, carrots, celery, cabbages, cauliflowers, and many others, whose stalks run up to a great height, and if they are not properly secured in due time, the winds and heavy rains will break them down. This may be done by driving stakes into the ground, and fastening poles all round, or in any mode judged most suitable.

43.—*Cardoons.*

The cardoons, sown in March and April, ought now to be thinned to about four or five inches distance, in order that the plants which remain, may have room to grow, and gather sufficient strength, by next month, when they should be planted, where they are to remain, for landing up, to blanch.

44.—*Ricinus, Palma Christi, or Castor Bean.*

This plant may be raised to great perfection in the southern states, and to some advantage also, in the middle states. The soil should be richly manured, well pulverized with the hoe, or plough and harrow. The ground should be sufficiently warmed by the sun, before they are planted. The time of planting Indian corn, will answer for a general rule for these seeds, that is, from the first to the fifteenth of this month, in the middle states; but the warm season is scarcely long enough to bring them to perfection, so as to allow of them as a field crop. The furrows should be about six feet apart, each way, and two or three seeds planted at the intersections; two shovels of rotten manure should be thrown in the bottom, and afterwards covered about three inches with earth; before dropping the seed thereon, cover them about an inch or two

with pulverized good mould, keep them clean of weeds, with the plough, draw the earth three or four inches high about their stems, carefully take all the suckers from them, and in the southern states, they will produce abundantly. They may be gathered, as they ripen, and when the outer coat is dry, the bean may be taken out, and kept for making oil.

45.—*Destroying Weeds.*

The gardener cannot be too strongly reminded of the necessity of destroying weeds whilst young. The utmost attention must now be given to destroy them, throughout the whole garden, but more especially among the young rising crops. It is now the most important work for him to be engaged in. The hoe should be used between all the rows and drills, and the weeds which are close to the plants, pulled up by hand.

The onions, carrots, leeks, and all other close and low growing crops, should be always kept free from weeds, from the moment they appear above ground, till grown to their full size. For those sown in drills, a small hoe or a suitable rake, with several short teeth, will answer well, but where these cannot be applied, hand-weeding must be practised.

46.—*Watering.*

Watering in dry weather, is very necessary, not only to the larger growth of plants finally transplanted, such as cabbages, cauliflowers, lettuce, celery, &c. but more particularly to the newly transplanted crops, whether young seedlings, or such as have been pricked out into new beds. A plentiful watering should be given to each plant, immediately after planting out, and repeated occasionally, until all have taken root, and begin to grow.

Water should generally be given late in the afternoon, that the plants may have as much benefit from it as possible, before it is exhaled by the heat of the succeeding day; but when it cannot be done in the evening, it may be given, though more sparingly, in the morning.

FOR JUNE.

1.—*Melons and Cucumbers.*

ALL the melons and cucumbers that have hitherto been under the protection of glasses or paper frames, may now have them removed, and be fully exposed to the open air. Refreshment of water will be necessary occasionally, and particularly to cucumbers.

Keep them entirely free from weeds, and hoe the ground between the plants frequently; draw the earth gently to the stems of all, and lay the vines off in a regular and neat manner; prune luxuriances, by nipping off the runners; lay a shingle under each fruit of the melons.

In the last week of this month, sow general crops of melons and cucumbers, for pickling.

2.—*Water Melons, Squashes, and Pumpkins.*

These plants should be thinned now, if not done before, leaving but three of the best in each hill; draw the earth with a hoe up to the stems of the plants, as high as the seed leaves; keep the ground loose, and perfectly clear of weeds.

3.—*Sweet Potatoes.*

Sweet potatoes must have earth drawn round the hills, to encourage the growth of the roots; lay off the vines as regularly as well may be, and keep them free from weeds.

4.—Cauliflowers.

The early cauliflowers will now produce their heads; care must be had to break down the leaves, to preserve the flowers from sun and rain, as directed in page 80.

Draw the earth round the plants, in the form of a basin, to retain the water, which should be frequently given them plentifully, which will greatly enlarge the size of the flowers; this is absolutely necessary in dry seasons.

The cauliflower plants, from late sowing, should now be planted out finally; if not done in rainy weather, give them water after planting, and lay a large leaf of cabbage, as a shade, over them.

5.—Cabbages and Savoys.

Take the opportunity of moist or cloudy weather, to plant out a full crop of the late spring sowings of cabbages, savoys, and of the red pickling cabbage.

You may now sow seeds of any of the early heading kinds, as the early Smyrna, York, sugar-loaf, or Battersea, for autumn.

6.—Borecole, Brussels' Sprouts, Jerusalem Kale, Turnip Cabbage, and Broccoli.

The early plants, of either of the above kinds, may now be planted out, as directed in May; the late sown crops should be thinned, and those pulled out, planted in nursery beds, four inches asunder, giving them a good watering when planted, and afterwards occasionally, until well rooted.

Early in this month, sow some more broccoli seed, for a succession crop, to produce their heads in February.

7.—Celery.

Celery plants may now be planted out in trenches; mark out the trenches by line, ten or twelve inches wide, and allow three feet between trench and trench; dig each trench a moderate spade deep, and spread

the earth, dug out, equally on each side of the trench; put about three inches of very rotten dung into the trench, then pare the sides, and dig these with about two inches of the under mould, incorporating all together; then put in the plants, in the middle of the trench, in single rows, about six inches asunder; trim them before planting. When completed, give them a plentiful watering, and shade them by placing sticks across the trenches, and over these put pine boards, until they strike root, and begin to grow, when the boards are to be taken off.

When the plants are grown to the height of eight or nine inches, they should have their first landing; this must be done, by pulverizing the earth, and laying it gently around their sides, leaving the hearts and tops free; repeating it, every few days, until they are blanched of a sufficient height.

8.—*Peas.*

A few peas may still be sown, and if the season prove moist, they may produce.

9.—*Asparagus.*

The asparagus, now running up to seed, should be cleared from weeds; also the seeding plants.

10.—*Transplanting Leeks.*

Manure and dig the ground well, then draw from the seed beds the strongest plants, trim the roots, and cut off the tops of the leaves, plant them in rows a foot asunder, and six inches, plant from plant, in the rows; insert their shanks into the earth up to their leaves.

11.—*Lettuces.*

Sow and transplant lettuces, as directed in page 82. Let this be done in moist weather or else water them plentifully.

12.—*Small Sallading.*

Continue to sow cresses and other small sallading, once a week. Water them often, in dry weather.

13.—*Kidney Beans.*

Sow successive crops of kidney beans, in the beginning, middle, and latter end of this month. Land up the kidney beans sown last month.

14.—*Carolina and Lima Beans.*

Hoe and clean the ground between these beans; see that all are properly supported with sticks.

15.—*Radishes.*

A few of the salmon and short top purple radishes may be sown; also some of the white and red turnip-rooted kinds. Towards the middle or end of the month, sow a good crop of the white and black winter radish, to draw early in autumn.

16.—*Carrots, Parsnips, and Onions.*

The crops of carrots, parsnips, and onions, must now be kept clean of weeds, and if the onions incline more to tops than roots, lay the tops down.

17.—*Beets.*

The crops of beets, should be kept very clean from weeds, and the plants thinned to eight or nine inches plant from plant, if not done before.

18.—*Endive.*

Transplant endive that is now of a sufficient size; for the method, see page 99. Sow another crop of curled endive, about the middle, and latter end of the month.

19.—*Okra, Tomatas, and Egg-plant.*

Earth up the crops of okra; where too thick, thin them, to the distances mentioned in page 88. Keep the ground clean from weeds.

In the early part of this month plant out tomatas, and egg-plants, as directed in pages 71 and 88.

20.—*Capsicums.*

In the early part of this month, plant out full crops of the capsicums from the seed-beds, as directed in page 87.

21.—*Cardoons.*

Plant out cardoons in a bed of rich earth, at the distance of four feet, every way, from one another: one good plant is sufficient in a place, as they rise to the height of three or four feet, and require a considerable quantity of earth to blanch them.

22.—*Plant Pot Herbs, &c.*

Plant out from the seed-beds, for edgings of the borders, or in beds, plants of thyme, hyssop, sage, sweet marjoram, winter savory, &c. &c. Let this be done if possible in moist and cloudy weather.

23.—*Gathering Herbs.*

All kinds of herbs, such as mint, balm, clary, lavender, sage, rosemary, &c. that are gathered for drying, or for distillation, should be cut off, when just beginning to come into full flower, and laid in the shade to dry gradually.

24.—*To destroy Weeds.*

As the sun, at this season of the year, is powerful, give the ground a complete hoeing, where it can be done; the weeds will more easily be destroyed, and by stirring the earth around the plants, particularly after a shower of rain, it will refresh them.

FOR JULY.

CLEAN and prepare all vacant ground, where the crops have come to maturity and have been taken off, that it may be in order to receive fresh seeds, and plants, such as may be made use of in autumn and winter.

1.—*Peas.*

The early crop of hotspur peas, will, in this month, be ripening for seed; and as it is not so necessary, in the middle states, to change all kinds of seeds, every year, as in most parts of Europe; this valuable article may be planted in the same ground, for several successive years, and the seed materially improved, so as to produce double the quantity, by attending to the following directions.

None, from the rows of peas which are intended for seed, on any occasion, ought to be gathered, until they are fit for seed, then go over the rows, select all the pods, which appear to have five peas and upwards in them, shell them out carefully, and afterwards, with a coarse riddle, which will just admit the smaller peas through, separate the small ones from the rest (the small ones to go into the general mass), the best to be reserved for your own sowing. The second year you may reject all pods which have not six and upwards in them, handpick, and shell them in like manner, and so continue the third and fourth years, when the peas will have attained their full maturity, and some of the pods will have ten and eleven fine large peas in them, and if the same care is observed ever after, they will not degenerate, but will continue to

produce as before mentioned, without being so subject to the blight.

The small dwarf pea may be treated in the same manner, with an equally good effect, but as the seed is small, of course a riddle suited to their size must be used. The other sorts might probably answer as well, if managed in the same manner; but these have not been proved.

2.—*Potatoes.*

Early this month, if not done in the last, a fall crop of potatoes may be planted in the middle states. The ground may be furrowed out, pretty deep, let the furrows be three feet apart, and a good coat of rotten manure spread in them, about three inches thick; place cuttings of the potatoes, having two or three eyes in each, about ten to twelve inches apart, in the rows, and cover them with about six inches of earth. A few days before they shoot up through the ground, harrow them over, with the back of the harrow, which will considerably check the growth of the weeds, and after they appear above ground, a small harrow may be run over the ground, between the rows, which may be expeditiously done; after which the hoe and plough must be used to destroy weeds.

The potatoes planted early in the spring, will now be fit for use.

3.—*Cauliflowers.*

The late sown cauliflowers, intended for winter use, may now be planted out.

In planting this crop, take every opportunity of showery or moist weather, plant them at the distance of two and an half feet each way; let them be immediately watered, and afterwards frequently, until they have taken root.

4.—*Cabbage Seed.*

Sow some of the early York, Battersea, and sugar-loaf cabbage, for a supply of young greens during the autumn. They are by some called coleworts, and

have superseded the true coleworts, which were formerly propagated, for boiling as greens.

Some Savoy seed may also be sown at this time, for a late winter crop.

5.—Coleworts.

Those who wish to have the true coleworts, may sow them, early in this month, to be planted out in the beginning of next month, for winter greens, but the early York, &c. cabbages are preferable, to be used instead of these.

6.—Planting Cabbages, Savoys, Borecole, &c,

Plant out your late crops of cabbages, Savoys, borecole, broccoli, turnip cabbage, Brussels' sprouts, Jerusalem kale, and all others of this species, in moist or cloudy weather; let them be planted, as formerly directed, and immediately watered, which must be frequently repeated, until they have taken root and begin to grow. Lay a fresh cabbage leaf over each plant, for a few days, which will protect them from the sun. Some seed of the green curled borecole may be sown for a late crop.

7.—Small Sallading.

Continue to sow small sallading, every eight or ten days; shade them with mats from the mid-day sun, and water them frequently.

8.—Lettuce.

Thin and transplant the lettuces sown last month, water them immediately, and repeat it when required.

Sow more lettuce seed, the beginning, middle and particularly the latter end of the month, for a regular succession. The white Silesia, brown Dutch, India, grand Admiral, and Saxony cabbage lettuce, are all good kinds.

9.—Carrots.

Towards the end of this month sow some early horn carrot seed, in drills, to raise young roots for autumn

and winter. When the plants are up, an inch or two, thin them to five or six inches.

10.—*Celery.*

Plant out into trenches a full crop of celery, for autumn and winter; let this be performed as directed, in June, page 92. The red stalked celery blanches very white, and is generally preferred to any other.

Earth up the early crops of celery, which have been planted out in trenches, first pulverizing the earth, and then laying it neatly to both sides, preserving the tops and hearts of the plants free; repeat this earthing, every eight or ten days, or oftener, until the plants are of proper size for use.

Sow more seed, in the first week of the month, for a late crop.

11.—*Turnips.*

Between the twentieth of this month and the middle of August, a principal crop of turnips may be sown for autumn and winter use; but the earlier, in that period of time, they are sown, the larger size will the roots attain to.

12.—*Transplanting and sowing Endive.*

Plant out a sufficient quantity of the best and most flourishing endive. It requires a good, strong, moist ground, well dunged. Put in the plants a foot asunder every way, water them immediately, and repeat it every evening till the plants have taken root.

Sow green endive, also white, and Batavia, twice this month. They should be sown in ground well prepared, and sown thin. Water them frequently in dry weather, both before and after the plants appear.

13.—*Spinach.*

In the last week of this month, sow a crop of the round seeded spinach for autumn use.

14.—*Radishes.*

Radishes, of every kind, may be sown in the last week of this month; but particularly the white and

black Spanish, or winter radish, of which a full crop ought to be sown for autumn and winter.

Sow, likewise, some of the short top salmon and purple, also the turnip rooted radishes. Let all these seeds be now sown on moist grounds.

15.—*Artichokes.*

In order to have artichokes in perfection, in the first week of this month, all the small heads, which are produced from the sides of the stems, must now be cut off to allow the main head to attain its full size; these small heads may now be dressed for the table.

The maturity of a full grown artichoke, is apparent by the opening of the scales; and it should always be cut off before the flower appears in the centre.

As soon as the heads are all taken from any stem, it should be immediately cut down close to the ground.

16.—*Cardoons.*

Plant cardoons in the first week of this month, if not done in the last month, as directed in page 95. Earth up in dry weather, those planted at that time; tie the leaves previous to the earthing of them with a hay-band, which will preserve the plants; the earth to be raised up half their height.

17.—*Melons, Cucumbers, Squashes, Pumpkins, and Gourds.*

The crops of these should now be kept very clean and free from weeds, the space between the hills must be carefully hoed, without injuring the vines.

18.—*Melons for Mangoes.*

The first week in this month, sow the seeds of the long smooth melon, for mangoes (in the middle states), as directed in page 78.

19.—*Cucumbers for Pickling.*

From the first to the tenth of the month, sow a general crop of cucumbers for pickling, treat them as directed in May and June. The green cluster cucumber is the greatest bearer.

Some of the early frame, or short prickly kinds, may be sown in the middle of the month, for a late crop.

20.—*Kidney Beans.*

Kidney beans of the dwarf kinds may be planted, in the beginning, middle, and latter end of this month. It will be best to water the drills before planting, and if they have been steeped in pond water, for five or six hours, before planted, they will shoot the sooner.

21.—*Egg-Plant, Red Peppers, and Tomatas.*

In the first week of this month, if not done before, plant out these, as directed last month. Give them shade and water until they have fully taken the ground.

22.—*Leeks.*

You may still continue to plant leeks, as directed in page 70.

23.—*Garlick, Shallots, and Rocambole.*

When the leaves of these plants wither, pull up the roots, and dry them in the shade for a week or ten days.

24.—*Onions.*

Pull onions when the leaves wither, do this in dry weather, and leave to each onion, about four inches of stalk. Spread them on dry ground for ten or fifteen days, turning them every other day. Then clean them from the earth and spread them on a dry room floor, leave the windows open, in dry weather, three or four weeks, after that keep out the air, and turn the onions occasionally, picking out such as may be injured.

25.—*Collect Seeds.*

Collect all kinds of seeds, as they come to full maturity, cutting off or pulling up the stems, with the seed thereon, as they ripen, and spread them in an airy place, where they can receive no wet, in order that the seeds may dry, and harden gradually; carefully turn them occasionally, and observe not to lay

such a quantity together, as will cause them to ferment. When they are sufficiently dry, beat out and clean the seeds, and lay them by in boxes, or bags, labelling each kind.

26.—*Herbs.*

Gather herbs for drying and distilling as they come into flower, and dry them in the shade. Gather chamomile, marygold, and such other flowers as may be wanted, which may be now in bloom. Spread the flowers in the shade till sufficiently dry, and then put them in paper bags, &c.

Sage, hyssop, thyme, lavender, winter savory, and many other kinds, may still be propagated, by slips of the present year's growth, giving them shade, and occasional waterings till rooted. Plant them about three inches in the ground.

27.—*Sowing Peas.*

In the last week of the month, sow a crop of the golden hotspur peas. Water the drills, and let the peas be soaked in pond, or soft water five or six hours, before sowing—should the season prove moist, they will produce early in September.

28.—*General Remarks.*

Earth up your cabbages, okras, peas, kidney beans, &c.; this will greatly refresh them, and protect their roots and fibres from the intense heat of the sun.

Diligently destroy weeds, before they seed, and immediately carry them out of the garden. Give water whenever it appears necessary, and let this be always done of an evening, that it may have time to settle down to the roots, before the morning sun exhales it.

Pull up the stalks of beans, cauliflowers, cabbages, and the haulm of peas, and other plants which have done bearing, and clear the ground; for if these are suffered to remain, they may harbour vermin to the injury of the adjoining crop.

FOR AUGUST.

1.—*Savoys, Broccoli, and Borecole.*

IN the first week of this month, finish planting Savoys, at the distance of two feet. With a little care, they may be preserved through the winter.

The early York, Battersea, and sugar-loaf plants, the seeds of which were sown last month, may now be planted out, and some more of the seeds sown the first week in this month, for heads late in October. In the southern states, where the plants may remain out all winter, this will be useful. Plant now your last crop of borecole, also the broccoli from the nursery beds.

2.—*Radishes.*

In the early part of the month, sow a sufficient crop of short-top, purple, and salmon radishes, also some of the white Naples, and white and red turnip-rooted sorts. In the middle or latter end of the month, sow a second crop.

Some of the white and black Spanish kinds, or winter radishes, may be sown at either of the above periods.

3.—*Sowing and transplanting Lettuces.*

The kinds proper to be sown, early in this month, for fall use, are the brown Dutch, grand admiral, large royal, imperial, white cos, Mogul, and New-Zealand lettuces; sow them as directed in former months. In the last week of this month, sow some of

the brown Dutch, hardy green cabbage-lettuce, and grand admiral, to transplant in October, into frames or warm borders, for winter and spring use. For their protection from frosts, see November.

Transplant lettuces from your seed beds; give them a plentiful watering, as you plant them, and repeat it as often as necessary.

4.—*Small Sallading.*

Where small sallading is required, it may still be sown, and watered, as before directed.

5.—*Endive.*

Transplant, according to directions in page 99, such endive, as is of a suitable size, water it immediately, and repeat it, until the plants begin to grow freely. They must be planted in an open place, free from shade.

Select the large, full hearted plants of endive, when the leaves are very dry, otherwise they will rot; tie them together, not too tight, about the middle, with shreds of Russian mats, previously gathering all the leaves regularly.

6.—*Angelica, Fennel, and Carduus Benedictus.*

Sow these seeds this month; they will produce stronger plants than if sown in spring, and be fit to transplant early the next year.

7.—*Cardoons and Finochio.*

Cardoons that have been planted out, must be treated as directed in last month.

Earth up finochio, which is full grown, in order to blanch it.

8.—*Corn Sallad.*

In the middle states, this should be sown in the last week of this month, for winter and spring use; it should have a dry soil and open situation, and carefully raked in; the plants will soon appear above

ground, when they are to be thinned from two to three inches asunder.

9.—*Melons and Cucumbers.*

In dry weather, water your melon and cucumber vines three or four times a week; gather the fruit, as it becomes fit for use, and keep the plants perfectly free from weeds.

10.—*Winter Cresses.*

The winter cress is sown and treated, as the corn sallad; it is commonly called scurvy grass, to which it is by no means allied. If sown in the last week of this month, or first in September, on a dry soil and warm situation, it will afford an early sallad in spring.

11.—*Water Cresses.*

Sow the seed in a watery or moist place; they are not to be cut the first year.

12.—*Spinach.*

In the last week of this month, sow a principal crop of the prickly seeded spinach, for early spring use; this ought to be sown on a dry soil. A second sowing will be necessary, in the first week of September.

13.—*Turnips.*

The first week in this month is a suitable time to sow the principal crop of turnips, for autumn and winter use, whether in the garden or field. In the eastern states, the last sowing ought to be in the first week of this month. In the southern states, they may be sown later. For directions see page 70.

14.—*Artichokes.*

The late spring planting of artichokes, should now be treated, as directed for the older plants in page 53.

15.—*Asparagus.*

Asparagus must now be kept perfectly clean from weeds, but particularly those planted last spring, and also the seedling beds, by a careful hand weeding.

16.—*Celery.*

Transplant into trenches, a full crop of late celery, as early in the month as possible, agreeably to directions in page 85.

Earth up the advancing crops as directed before.

17.—*Peas.*

A crop of the early peas may be sown, from the first to the tenth of the month. If the weather prove dry, soak the peas, and water them, as directed in page 102.

18.—*Kidney Beans.*

Early in this month, you may plant a crop of the dwarf kidney beans. If the ground be dry at the time, the drills ought to be watered, and the beans soaked in soft water, four or five hours before planting.

19.—*Carolina and Lima Beans.*

Hoe and clean between the rows of these, and cut off any runners, that trail on the surface of the ground, which only tend to rob the bearing vines.

20.—*Parsnips.*

About the fifteenth of the month, in the middle and eastern states, a bed of parsnips may be sown in drills, as directed in page 40. These will come up this fall, and they may be wed with a hoe, and kept clean from weeds, and in the spring, thin them as in page 40. Should any run up for seed (which they seldom will) these may be pulled out. The ground should be previously trenched two spades deep, and well manured.

21.—*Herbs.*

Cut such herbs as are now in flower, to distil, or to dry for winter use; always perform this, when they are dry, and spread them in a dry shady place.

Cut down decayed flower stems, and those which are unsightly and straggling.

22.—*Collecting Seeds.*

As the different kind of seeds ripen, gather them in dry weather, and manage them, as directed in last month, page 101.

23.—*Spinach.*

Prepare some ground, and sow a crop of the smooth round seeded kind, to be sown in the first week of the month; these will be fit for use in September. Sow more in the second week, which will be good in October.

In the last week of this month, sow the first principal crop of the prickly seeded spinach, for early spring use; this ought to be sown on a dry gravelly soil, for on such it will stand the winter better than on any other. With this sowing, scatter a few seeds of brown Dutch or cabbage lettuce.

24.—*Dung, or Compost Heaps, and Weed Heaps.*

The dung and compost heaps, during the summer months, should be kept free from weeds; for if the seeds are permitted to ripen and fall, the dung, when carried into the garden, will poison the whole ground.

The manure produced by the heaps of weeds taken out of the garden, should not be introduced therein again, until it is three or four years old.

25.—*General Remarks.*

Continue to weed all young crops in wet weather, then the weeds will come up readily by the roots; water the crops, particularly the young ones, in dry weather, three or four times a week, before sun-rise, and particularly after sun-set; clear away the stalks and rubbish of old crops; take showery weather for planting, and dry weather for earthing up plants.

Southern States.

In the southern states, particularly the Carolinas and Georgia, this month being the commencement of their rainy season, it is common to sow cauliflowers,

cabbage, parsnip, onion, leek, &c. in short, the general variety of seeds, that are sown in the middle states, in the months of March and April; these kinds arrive there, in a tolerable degree of perfection, before their winter sets in, which is so very mild, as scarcely to injure any of their esculent crops, and such of them, as do not arrive at maturity before winter, attain it early in the spring.

FOR SEPTEMBER.

1.—*Spinach.*

HOE and clean all the crops of spinach, and let the plants be thinned out to about six or eight inches apart, in order to afford sufficient room for large succulent leaves.

In the first week of this month, prepare some good dry ground, for a full crop of spinach for winter and spring. In the eastern or middle states this work should not be delayed later. The more to the southward, the later this crop may be sown.

The hardiest and most suitable to be sown at this season, is the prickly seeded kind. A thin sprinkling of the brown Dutch, Egyptian cos, and hardy cabbage lettuces, may be sown among the spinach, and if the winter prove mild, you may have some good plants, to produce heads, in the spring. Sow the seed broadcast, and beat it in with the back of the spade; then rake the ground even and fine, so as to cover the seed well.

When the plants are up, and have their leaves about an inch broad, they must be thinned to three or four inches apart, and the weeds entirely cleared away; by this management, the plants will become stocky, and better able to bear the winter frosts.

2.—*Radishes.*

In the first week of this month, sow a good supply of the early short-top, also white and red turnip-rooted radishes, and the black and white winter, or Spanish kinds; the latter must be taken up on the commencement of frost, and preserved for winter use, as you do carrots or turnips.

3.—*Lettuces.*

The various kinds of lettuces, sown last month, should be transplanted as early in this, as they shall have attained a suitable size; let the ground be well prepared, set them about ten inches asunder, and let them be watered immediately, and if the weather prove dry, repeat the waterings frequently.

In the last week of this month, in a sheltered south border, transplant the lettuces, sown in the latter part of last month, for standing over winter, for spring use; make choice of the best plants from the seed-bed, pick off the decayed leaves, trim the ends of their roots, and plant them in rows six inches asunder every way. Should these plants survive the winter, every other one may be taken up in spring, and planted in new beds, which will allow the others room to grow to perfection. Protect them, during the winter, as directed in November.

Sow more of the brown Dutch, Egyptian cos, and the hardy cabbage kinds, about the first of the month; and about the middle of the month, sow another crop of the same kind, to be planted in frames in October, for their winter preservation.

To have lettuce in good perfection in November, December, and January, about the latter end of this month, prepare a bed or beds of rich earth, in a warm part of the garden, where the ground is dry, and lies well to the sun; make each bed the length and width of a cucumber frame, plant therein some good plants, of the best kinds of heading and cos lettuces, and water them occasionally, till well rooted.

Towards the middle of October, when the nights begin to grow cold, place the frames and glasses on the beds; keep the glasses on every night, but take them entirely off in the day time, till the severe frosts commence; after which you must be governed by circumstances, always admitting as much air every day, as the safety and growth of the plants will warrant.

4.—*Mushrooms.*

As this is the season, to prepare the beds, and provide the spawn for the *Agaricus campestris*, champignon, or common mushroom, a particular description of it, as well as the method of propagating it, requires a more minute direction, than most other plants. Of two hundred and thirteen species of Agaricus, noticed by botanists, this is the only one suitable to be cultivated in gardens. The importance of being acquainted with the true sort of mushroom, and the marks by which it may be distinguished from the poisonous *fungi*, cannot be too clearly defined.

Agaricus campestris, or *common mushroom.*—This good sort is thus described by Abercrombie, in his practical gardener: from one to seven inches broad. The *hat*, at first appearance, smooth, and almost globular, the edges of it pressing upon the pillar, while a white membrane, which almost covers the gills, extends from the edge of the hat to the top of the pillar. In this state, the *fungus* is called a button. By degrees the hat expands, the membrane bursts, the edges of the hat (or cap) recede from the pillar, and the gills may be seen underneath. In this second stage, the hat is convex, afterwards almost flat, and a little scaly, liquefying in decay. Diameter of the *hat* (or cap) commonly from one inch to three, and sometimes four or more. *Stem*, solid, one to three inches high, and about one inch in diameter.

In some, the crown is of a dirty cream colour; in others, ivory white. In a young plant, gills of unequal length; they are of a lively pink or flesh colour, this soon changes to a purple, and, in a mushroom left

some time ungathered, the hue of the gills turns to a chocolate or blackish brown. *Found in old pastures.*

Note.—The crown of this sort may be rubbed on the coat-sleeve without changing colour, unless the cortex be broken, when the surface will be pure white.

Criterion of poisonous sorts.—The baneful quality of the poisonous fungi is in general indicated by a sickly nauseous smell, though some hurtful sorts are so far from being disagreeable in the scent, as to make this criterion too unsafe to depend strictly on. The wholesome kind, however, invariably emit a grateful rich scent.

Spawn.—The first thing is to provide spawn. This is a white fibrous substance, running, like sprigs of thread, in such dry reduced dung, or other nidus, as is fitted to nourish it. The true sort has exactly the smell of a mushroom. The month of September is the best time to look for it, in the place where it is naturally formed. The droppings of hard-fed horses produce it more plentifully than the dung of any other animal. It is to be found, in strength and purity, in a horse mill track, under shelter, in dry half rotten dung heaps, and in decayed hot-beds. The spawn dug up near the roots, or old stools, of gathered mushrooms, is full of small white knots, which, in fact, are young off-sets. It is also frequently to be found in rich pasture fields, old mushroom beds, old cucumber beds, &c. but that of the tree kind from the pastures, or old mushroom beds, is to be preferred.

A sufficient quantity of good mushroom spawn is now to be provided, by taking up the earth or dung, in which you find it, in lumps, observing to preserve them as entire as you well can, but if the pieces are wet or very damp, when collected, they must be spread to dry gradually; the spawn is scarcely ever destroyed by drought, especially when mixt with earth or dung.

It will be necessary in the early part of this month to provide a quantity of fresh horse dung, and to throw it up in a heap to ferment; when it has lain two or three weeks, turn it again, that all the parts may be equally fermented, and the violent heat passed off. In this state it should remain till about the first week of October, when the bed is to be made, as directed in the kitchen garden of that month. See art. Mushroom.

5.—Sowing Cabbage Seed.

The proper time for sowing cabbage seed, in the middle states, to produce early cabbages, the next year, is between the 6th and 10th of this month, if intended to be transplanted into frames in October, for winter protection, which is the preferable method; but if they are designed to remain in the seed beds, the period is between the fifteenth and twentieth.

As those plants which are too forward, are subject to run to seed in the spring, soon after they are planted out, and if the seeds are sown too late, the plants do not acquire sufficient strength before winter to withstand its rigour, without extraordinary care. The remedy in the former case is, if they are likely to become too luxuriant and strong, plant them once or twice in October, and in the latter case, if too backward and weak, make a slight hot-bed, towards the latter end of that month, and prick them out of the seed bed thereon; this will forward them.

In the middle states, the first sowing should be from the eighth to the tenth; the second four days after, and the third on the eighteenth, as the difference of two or three days, will, in a few weeks after they have come up, be very perceivable. In the eastern states, the first of the month will be the most suitable time.

The kinds, proper to be sown now, are the early Smyrna, early York, early Battersea, early Russia, and early sugar-loaf cabbage; also, some of the flat Dutch, large English, and red pickling kinds, may be sown, to succeed the other sorts, and to produce fine large

heads early in autumn. The seeds of these late kinds may be sown three or four days earlier than the former, as they are not so subject to run to seed in the spring.

Sow these seeds in beds of good garden mould, and cover them about a quarter of an inch. If the weather should prove dry, water the beds occasionally in the evening, till the plants are up, and in about five weeks, they will be fit for transplanting for the winter, as directed in October.

Such as are sown at this time, will produce much larger and more solid heads, than the spring sown plants, besides they will be fit for use, immediately after the early cabbages are consumed, and thus keep up a regular and constant supply. Late sown cabbage plants would be improved by treating them as directed below for cauliflowers.

6.—*Sowing Cauliflower Seed.*

In the middle states, the critical period for sowing cauliflower seed, is between the twentieth and twenty-eighth of this month; if sown earlier, the plants would be very subject to button, (as the gardeners term it) or flower in April or May; these buttons or flowers seldom exceed the size of a button. Therefore, it would be as well, to sow the seed at three different periods, as the twentieth, twenty-fourth, and twenty-eighth of this month. For each sowing, let a small spot of rich ground be neatly dug, the seed sown and raked in carefully, and cover them with light earth, half an inch deep.

Should the weather prove dry, water the beds, both before and after the plants are up, and in a month after sowing, they must be transplanted into beds of good rich earth, covered with garden frames, at the distance of three inches from one another, there to remain during winter, and to be taken care of, agreeably to the directions in the following months.

If the plants should be weak, when they are to be planted in frames in October, let a trench be dug about ten inches deep, and the breadth of a frame, then fill

it with fresh dung, about eighteen inches from the bottom, and set on the frame; earth the bed over with five or six inches of rich earth, and set the plants in rows, three inches apart every way, immediately give them a moderate watering, and place on the glasses; leave them open at the top, about four inches, that the steam may pass away.

A mat must be laid over the glasses in sunny weather, until the plants have taken root, after which they may be taken off by day, till the weather becomes too severe; they must have as much air as possible, consistent with their preservation.

The plants, with the assistance of this slight hot-bed, will soon take root, and acquire a degree of strength before the severe weather.

7.—*Late Cauliflowers and Broccoli.*

If the weather should prove dry, give occasional watering to the crops of the late cauliflowers and broccoli.

8.—*Parsnips.*

Some parsnips may be sown, as directed in last month.

9.—*Endive.*

Transplant a full crop of endive, as early in this month as possible, for autumn and winter use. Tie up the leaves of full grown endive, as directed in page 104.

10.—*Celery and Cardoons.*

Earth up the celery, as it advances in growth, in the manner directed in page 93.

The cardoons will now require earthing up for blanching, which is to be performed, as directed in page 100. On the approach of frost, they may be protected as celery, if not used before; for which, see November.

11.—*Winter Cresses, Corn Sallad, and Chervil.*

Sow corn sallad and winter cresses the beginning of this month, if not done before, for winter and spring use. Sow these as directed in August.

Sow likewise a supply of chervil; this may be put in drills ten inches asunder, and covered about a quarter of an inch deep, with fine earth.

12.—*Turnips.*

Hoe and thin your crop of turnips. Let this be done in a dry day.

13.—*Small Sallading.*

Small sallading may yet be sown. What is sown towards the end of the month, should be on a warm border.

14.—*Welsh Onion Seed.*

Sow some Welsh onion seed, in the first week of this month, on beds of light rich ground, in a warm exposure, and afterwards keep them clean from weeds. This plant never produces bulbs; it is very hardy, and although the tops sometimes decay in winter, yet the roots will continue sound, and push up new leaves, on the eve of spring vegetation.

15.—*Perennial Herbs.*

Towards the latter end of this month, all hardy perennial herbs may be transplanted; they will take fresh root, and be well established before winter. It is a general rule with gardeners, that all transplanting should be done, if possible, in moist weather.

16.—*Onions.*

In the middle states, the first week in this month onion seed may be sown for next spring crop; sow them in drills a foot asunder, dropping the seed pretty thick, and covering them three-quarters of an inch deep.

17.—*Carrots.*

Carrots may now be sown in the middle states, for a spring crop; sow them in drills, ten to twelve in-

ches apart; cover the seed about half an inch deep. When they come up, thin them to about four inches, and weed them well.

18.—*Gather Seeds.*

Gather all kinds of seeds, as they ripen, and spread them to dry on suitable cloths; when sufficiently dried, beat them out, clean them, and put them up carefully, labelling each kind.

Southern States.

In the southern states, where the winters are mild, you may sow at this time, carrots and onions for early spring use, as well as the articles in general, recommended to be sown in this month. Plant out late crops of borecole, broccoli, celery, cabbages for winter, coleworts, endive, &c.

FOR OCTOBER.

1.—*Parsnips.*

SOME parsnip seed may now be sown, the first week in this month, and if the remaining part of the fall should prove mild and favourable, they will succeed; but there is more dependence to be placed on those sown in August, as there directed, which see, page 106.

2.—*Lettuces.*

In the first week of this month, transplant the lettuces from the late August and early September sowings, from their seed-beds, into others of light rich earth, in a warm exposure, and of such dimensions, as to be covered with frames, on the approach of frost. Plant them in rows six inches distant every way, so

that every other plant may be taken up for use, leaving the others sufficient room to head.

Lettuces designed to remain in the place where they are sown till spring, must be thinned, and kept free from weeds.

In the beginning of this month, sow some of the brown Dutch, hardy cabbage lettuce, Hammersmith hardy green, and green cos lettuce, in a frame, to be kept where sown, under the protection of glasses, &c. in order to afford a supply for forcing or planting out in the early spring months.

3.—*Cabbage Plants.*

The young cabbage plants, produced from the seeds sown last month, and intended for early summer cabbages, should be planted into the beds, in which they are to remain during winter.

Prepare a bed for them, the width of your garden frame, in a warm well sheltered place, where the sun has the greatest power, yet be careful never to admit the direct sun-shine on the plants, when in a frozen state, as this would infallibly destroy them; but when the plants are at these times secured from the direct rays of the sun, and the earth gradually thawed, its reflected heat revives them.

The plants should be set in this bed up to their leaves, three or four inches apart. When thus transplanted, they will survive the winter much better, than if left in the seed-beds. Select good plants from the seed-beds, and when planted, give them a gentle watering, though not too hastily.

Put on the frames immediately, and continue the glasses only for four or five days, till the plants have taken fresh root, observing to shade them from the mid-day sun, with mats. But when they begin to grow, the lights are to be taken entirely away, and the plants exposed to the full air, except in very cold nights, or heavy cold rains, until the setting in of severe frosts, as it is of importance, that they should be hardy on the commencement of cold weather.

When you have not the convenience of glass, the plants may be protected in winter by boards and mats.

In mild warm weather, when the sun is not powerful, give them the full air occasionally, and the oftener this can be done, provided they can be covered up again in due time, the better.

Plants that are in frames, and either the ground or plants frozen, must not be exposed to a *warm sun*, until they gradually become thawed, as this would inevitably destroy them; with these precautions, such as are not frozen, will be improved by exposing them occasionally to as much sun and air, as will be prudent, till planted out finally in March, &c.

By pursuing this method, you will have much earlier and larger heads, than can be expected from plants sown in the early spring months.

4.—*Cauliflowers.*

As cauliflower plants are more tender than cabbages, they will require the protection of glasses, and a good substantial covering, to defend them from the severe frosts, in the middle states. As they advance in growth, it will be proper to strew between them some dry tan, saw dust, or chaff, so as to cover the stems up to the leaves; this will afford great protection to those parts, which are most liable to be injured by frosts, &c.

If, in consequence of an unfavourable season, or not sowing the seed in due time, the plants are weakly or backward, prick them into a slight hot-bed, to promote their growth; in this case, be particularly attentive to give them plenty of air. Protect these plants from heavy rains, especially when the nights are cold, as they would turn black, and be entirely destroyed.

In the middle states, when the winters are mild, with due care, they will survive, if carefully protected, in garden frames, covered with boards and mats.

The late spring sown cauliflowers will now begin to show their heads, therefore they must be diligently

looked over, two or three times a week, when the inner leaves should be broke down upon the flowers, which will protect them from sun, frost, and wet, either of which would change their colour, and injure them.

5.—Winter Spinach.

Weed and thin your late crops of spinach; leave the best plants at the distance of three, four, or five inches asunder. Some of that sown in August, will now be fit for the table, and if the plants were left too thick, let them be thinned out regularly, by pulling some up by the roots, as they are wanted; but if the plants were thinned before, gather only the outside leaves, and the others will grow larger.

As spinach will rot off, wherever the weeds spread over it, it is necessary to keep it carefully wed.

6.—Hoeing, &c. Cabbages, Broccoli, &c.

Early in this month hoe and earth up the late planted crops of cabbages, savoys, broccoli, and borecole, in order to forward their growth, as much as possible before winter; likewise the late cauliflowers, and every other of the cabbage tribe.

7.—Winter-dressing of Asparagus Beds.

Towards the end of this month, if the stalks of the asparagus turn yellow, which is a sign of their having finished their growth for the season, cut them down close to the earth, clear the beds and alleys carefully from weeds, and carry them and the stalks from off the ground.

Asparagus beds should at this season, annually, have a dressing of manure, the dung of old hot-beds, or well rotted manure will answer; let it be laid equally over the beds, one or two inches thick; then stretch a line, and with the spade mark out the alleys, from about eighteen inches to two feet wide, agreeably to their original dimensions; dig the alleys one spade deep, spread the earth evenly over the beds, and give them a moderate rounding. In the middle and eastern

states, it would be well to fill up the alleys with old litter, well trampled down, which will prevent the frost from entering that way to the roots.

In the southern states, a row of early cabbage plants may be set in the alleys.

The seedling asparagus, which was planted last spring, and intended to remain where planted, should have a similar dressing. The beds of plants, which were sown to be removed, should be cleared from weeds, and then spread an inch or two of dry rotten dung over it, to defend the crowns of the plants from frosts.

Asparagus should not be attempted to be forced sooner than November, as, before that period, the roots will not be completely matured; however, about the middle or latter end of this month, prepare the hot-beds for it. For the method, see page 13.

8.—*Celery and Cardoons.*

In dry weather, continue to earth up celery and cardoons, to blanch them as directed in pages 93 and 100.

9.—*Mushrooms.*

The dung for the mushroom beds by this time should be duly prepared, and the spawn, as advised in September; you should in the first week of this month, begin to make the bed.

The bed should be situated in an elevated part of the hot-bed yard, or in some dry, well sheltered place. The bed ought to be made entirely on the surface of the ground, rather than forming a shallow trench, in which to make the bottom part; as by this method, it can be spawned quite to the bottom, and the lower part will not be chilled by standing water, in cold or wet weather.

The width of the bed at bottom should be from three to four feet and any length you please, in proportion to the quantity of mushrooms required, or the spawn provided.

Make the bed, by shaking some of the longest prepared dung, evenly all along the bottom, four or five

inches thick; then take the dung, in general, as it comes, and work it into the bed, gradually narrowing it upwards, shaking and mixing the dung, as you proceed, and beating it down, with the fork, layer by layer; proceed in this manner, drawing in the sides of the bed, till it terminates in a narrow ridge at top, so that the bed may be formed like the roof of a house: be careful that each end shall be sloped in the same manner as the sides, and that every part is made firm, by breaking it with the fork, as you proceed. It should be about three or three and a half feet perpendicular height when settled.

When the bed is finished, it should be covered with long straw, laid on neatly to keep out wet, and also to prevent its drying; in this state it is to remain about ten or twelve days, by which time it will be in a fit condition to be spawned; but to ascertain the state of the bed with greater certainty, put a few long sharp pointed sticks into several parts thereof, pull them out occasionally, to discover the progress of its fermentation, and when you find the heat on the decline, and temperate, that is the time to put in the spawn, for a violent heat, as well as too much wet, will inevitably destroy it. When this proper temperature is obtained, take off the covering of straw, and make the sides smooth and even; then lay about an inch thick, of light, rich, dry earth, all over the bed. In this the spawn is to be planted, in rows, six inches asunder, along the sides and ends, making the first or lowest row, six inches from the surface of the ground, and proceeding upwards, from row to row, to the top, placing the pieces of spawn about six inches asunder, and so far in, as to touch the surface of the dung. This done, lay part of the loose or scattered spawn on the top of the ridge, and shake some all over the bed; then cover the whole about an inch and a half deep with light rich earth, smooth the surface neatly, and lay on a light covering of straw as before, just so thick as to keep out wet, and prevent the bed from drying.

As the bed decreases in heat, and the weather becomes cold, increase the covering to a foot, or two feet, and in severe frost to such a thickness as may be effectually sufficient to prevent its reaching the bed. If in the middle and eastern states, these beds were to be covered with a shed, it would be of considerable advantage.

If the bed is in a due temperature, the mushrooms will begin to appear in about four or five weeks after it is made, and with proper care will continue in bearing several months. When it ceases to produce, in consequence of cold, or hard frost, lay a covering of hot stable dung, near a foot thick all over the bed, observing to leave under this, between it and the bed, about three inches thick of dry straw, covering the hot dung over with straw or litter; this will revive the heat, give new action to the spawn, and should be repeated as often as necessary, always observing to preserve the bed from wet, cold and frost.

A good bed may continue productive, for three, four, five, and sometimes even for twelve months; but by that time it is generally worn out; the dung then makes excellent manure, and the interior part furnishes sometimes good spawn.

The great skill of managing these beds, is keeping them in a proper degree of warmth and moisture, never suffering them to receive much wet; during the summer season, they may occasionally be uncovered, to receive gentle showers of rain, and in very dry seasons, the beds should be sometimes opened, gently watered, and covered up soon after: but the summer covering need be no thicker than what is necessary to preserve the bed from the drying influence of the weather.

This method of propagating mushrooms by *spawn*, or the white fibrous radicles, is the most common, but they may also be propagated by seed. When the latter method is used the gills are cut out, and put into the beds, or else they are infused into water, for

five or six days, and the beds then sprinkled with the infusion.

When the bed is in full bearing, it should be examined two or three times a week, to gather the produce, turning off the straw carefully, and collecting the white mushrooms, and those of a moderate size, taking care to detach them from the bottom, by a gentle twist, pulling the stems out clean, for if cut or broke off, the remaining parts will become putrid, and full of maggots, and consequently infectious to the succeeding plants.

Where mushrooms are greatly admired, and expense not regarded, they may be raised with more certainty, in greater abundance, and in a regular succession, by making the beds as before directed, under a range of glass framing, made in the manner of a hot-house; by this means, they could be effectually defended from excessive cold, wet, snow, or frost, and would be very productive. If the frame of glass be large enough to admit of a pit, like that in a hot-house, a bed of dung may be made therein, raised at top above the pit, in a rounding manner, on which the spawn is to be placed, and earthed over near two inches thick, and then covered with straw. Or, in such a pit, by mixing a quantity of strong horse dung, moist stable litter, and rich loam together, by filling the pit with this mixture, you may have the spawn generated, the dung predominating so as to produce a slow and lasting fermentation, and covering the whole over with about an inch deep of light earth, and a good coat of straw, the spawn will be produced; and from this, abundant crops of mushrooms, in regular succession for several months.

You may also make beds in the common hot-bed way, place thereon frames and glasses, and when the violent heat is abated, spawn the top all over, place therein about two inches of earth, then cover it thickly with straw, and lay on the glasses, to protect the beds from rain.

Mushroom beds may be made in any month, when the weather is mild and dry, but those made in the

beginning of this, are generally most productive; they also retain more heat on the approach of winter, than those made in September. If more are required, it would be well to make one in each month.

10.—*Small Sallading.*

In the middle states, when the season is favourable, small sallading will grow freely enough any time this month, in warm borders; but it will be proper to have frames and glasses to put over them, if necessity require it.

11.—*Comfrey.*

Comfrey may be propagated by parting the roots, and planting them in this month, twelve inches asunder, or by sowing the seed—see elecampane.

12.—*Elecampane.*

The seeds of elecampane should now be sown, for if kept till spring, few would vegetate till the year following; but when sown in this or next month, the plants will rise freely in the spring, and may be planted out the succeeding autumn.

It is generally propagated by off-sets, which if taken from the old roots, with a bud to each, will shoot roots freely. They should be planted at this time, in rows about a foot asunder, and the same distance in the rows. During the ensuing spring and summer, the ground must be kept stirred and free from weeds, and in autumn, slightly dug between the rows. They will be fit for use after two years growth. The young roots are preferred to those which are old. A loamy soil, not too dry, is the most suitable.

13.—*Aromatick and Medicinal Herbs.*

Cut down all decayed flower stems, and shoots of the various kinds of aromatic, pot, and medicinal herbs, close to the plants; clear the beds very well from weeds and litter, and carry the whole off the ground.

14.—*Endive.*

Continue every week to tie up some full grown endive for blanching, as directed in August, page 104, tying no more at a time, than in proportion to the demand, or consumption.

For further particulars respecting its preservation, see next month.

15.—*Raising young Mint and Tarragon, for use in Winter.*

Towards the end of this month, make a slight hot-bed, and set the plants therein, as directed in page 14; this done, put on the glasses, and raise them behind every day, to admit air. They will be fit for use in about a month.

16.—*Planting large Onions, to raise seed the succeeding Summer.*

From the middle to the latter end of October, is the most suitable time for planting out these bulbs, as they will have time to establish roots, which will protect them during the winter's frost. They will produce seed more plentifully, and be less subject to blight, if planted out now, than if left till spring; but when it cannot be done at this time, put them in the ground, as early as it can be prepared in February.

Choose a piece of good, rich, light ground, which dig a full spade deep, breaking it fine, as you proceed; select a number of the largest and best shaped onions of the kinds you would wish, observing to plant each kind at a considerable distance from other kinds; lay this ground out in beds about three and an half feet wide, with a fourteen inch alley between each bed; then strain a line about six inches from the side of the bed, and with a spade, make a drill about five inches deep, the length of the bed, in which lay the onions carefully on their bottoms, about nine inches from each other; then cover the bulbs about four inches above their crowns, remove the line a foot further on the bed, plant a second row as before, and so

continue till the whole is completed; then with the spade, cast a slight dressing over the beds, from the alleys, and rake it neatly.

In March, the leaves will appear above ground, after which, they are to be kept perfectly free from weeds, and towards the latter end of May, will have grown to their full height, when you must be provided with a sufficient number of stakes, about four feet long, to drive into the ground, close to the rows of onions, at the distance of eight feet from stake to stake, to which cords or strips of boards may be fastened on each side of the stems of the onions, a little below their heads, to support them from being broken down by the wind and rain, as the heads become very heavy, as they fill and advance to maturity, if each stock is secured by cross pieces, &c. it will prove beneficial.

When the seed is ripe, which may be perceived by the capsules opening, and the seed turning black, the heads are then to be cut off, and spread thinly upon coarse cloths, in the sun, till quite dry; shelter them at night, and in wet weather; then beat or rub out the seed, fan it clean, expose it to the sun for a day or two, then put it in bags, and label it.

17.—*Dill, Alisanders, Skirrets, Rhubarb, and Sea Kale.*

The seeds of these plants should now be sown; for if kept out of the ground till spring, many of them would not vegetate till a year after; but when sown in this, or next month, if the seeds are fresh and perfect, they will shoot up in March and April. For the method of treating them, see pages 56, 55, 52, 60, and 39.

18.—*Shallots, Garlick, Cives, and Rocambole.*

It will answer to plant roots of the above, at this season. For the method of planting them, see page 51.

19.—*Scurvy Grass, or Winter Cresses.*

Some seed of the *Cochlearia officinalis*, common scurvy grass, or winter cresses, may now be sown, as

the plants generally succeed better, if sown now, than in the spring. For directions, see page 105.

20.—*Liquorice.*

Cut the dead stems of liquorice plants, and dig the ground between the rows.

21.—*Jerusalem Artichokes, Carrots, Beets, &c.*

Take up the roots, as you do potatoes, and secure them in like manner from frost; also, about the latter end of the month, begin to take up the roots of full grown carrots, beets, parsnips, turnips, &c. which are preserved, as directed in November.

22.—*General Remarks.*

You should now give a general hoeing and weeding to all the crops, and carry the weeds immediately out of the garden, lest they shed their seeds, and lay the foundation of much trouble. Clean all vacant ground, from weeds, and decayed stalks of all vegetables.

Dung and dig the ground, that has not a crop on it, burying the dung, as the ground may be thrown up into ridges, that the winter frost may meliorate it for spring use.

Prepare compost, in sufficient quantity, as follows: mix equal quantities of earth, loam, and dung, lay this in a heap, and turn it over frequently, mixing it well every time, leave it exposed to the sun, weather, and frost. This manure will be necessary for the early plants next spring; but prior to using it, for several weeks, it should be preserved under cover, and carefully thawed.

Southern States,

In Georgia, South-Carolina, and all parts south of the thirty-fifth degree of latitude, you may now sow the seeds of carrot, parsnip, beet, onions, parsley, cresses, spinach, and several other kinds of hardy garden vegetables.

Plant out from the seed-beds, cabbage and cauliflower plants.

Sow peas, and plant early Mazagan and Windsor beans, with every other variety of the *Vicia Faba*.

In North-Carolina, Tennessee, and the southern parts of Kentucky, plant the varieties of the *Vicia Faba*, sow peas, carrot, onion, parsnip, parsley, and other hardy seeds. Plant out cabbages and cauliflower plants; but the cauliflowers, if the winter is severe, will require the protection of hand glasses, oiled paper caps, or frames, and the like. See November.

FOR NOVEMBER.

1.—*General Remarks.*

AS much may be done at this time, towards the laying out and preparing of new kitchen gardens, for the ensuing season, recur to directions given in former months.

In the beginning of this month, dung and trench the ground, that is intended for early crops, and lay it up in high narrow, sloping ridges, particularly, if it be any way stiff, or of a heavy nature, to receive the benefit of the winter frost, &c. which will meliorate and enrich it; besides, by having as much of this work performed now, as can be conveniently done, it will greatly forward and assist in spring, when you are hurried with the pressure of business.

Should the frost set in towards the latter end of the month, so as to bind up the ground, and prevent your trenching, cart or wheel manure into the different quarters, wherever it may be wanted.

1.—*Celery, Endive, and Cardoons.*

Continue, during the early part of this month, to blanch your celery, endive, and cardoons, as directed in the preceding months, but when severe frosts come on, they must be preserved therefrom, in the following manner:

Every third row of the celery may be suffered to stand where growing, opening a trench on each side of every standing row, within six inches thereof, for the reception of the plants of the other two rows, which are to be taken up carefully, with as little injury as possible, either to their tops or roots, and planted in those new trenches, in the order they formerly stood. When the three rows are thus planted, earth them up near to the extremities of their leaves, and as soon as the frost comes on severe, in a dry day, cover this wholly over with a little straw, and over this a good coat of earth. If the rows run east and west, the south side may easily be opened, to take out the plants when wanted. Or,

If you have a deep garden frame, you may almost fill it with fresh sand, and then take up and plant therein, a quantity of the largest and best celery, so close, as nearly to touch one another, and so deep, as to be covered within five or six inches of their tops; set on the glasses immediately, and be careful to keep it from wet, except a very gentle shower occasionally, in warm weather. When severe frosts set in, defend it, as directed for your hot-beds. By this means, you may have celery during winter, in the greatest perfection. Or,

Celery may be taken up when dry, air it well, and then plant it in sand, in a dry cellar, in the same manner as directed for planting it in the frames.

The beds of celery, which were planted, as directed in page 114, should, in the early part of this month, be earthed up to within six inches of the tops of the plants, and as soon as the hard frosts commence, earth them up, then lay a covering of dry sand over each row, rounding it off, and after this, a coating of dry straw. The ce-

lery thus protected, may be taken up in winter when wanted, unless the weather should prove too severe.

Endive may be preserved in a frame, or cellar, as directed for celery.

Cardoons may be preserved either in dry sand in a cellar, or by banking up a sufficiency of earth to them, where they grow, and covering the tops, &c. with straw, or long litter.

The above work should be performed in dry weather, and when the plants are perfectly free from wet, otherwise they will be very liable to rot.

2.—*Lettuces.*

The lettuces which were planted in frames last month, should still have the free air every day, while the weather continues mild and dry, by taking the glasses off every morning; but be careful to put them on again in the evening, and also, whenever the weather is cold or wet. But by no means keep them too close, as they would then draw up and become weakly, tender, and of little value. Towards the end of the month, if the frosts set in severe, give the necessary covering, so as to prevent the earth or plants from being frozen; but be attentive to admit air to them, as much as possible.

Such lettuces as are designed to be wintered in frames, should be planted therein the first week of this month, and should not be delayed any longer.

On the approach of severe frost, protect the lettuces, which were sown or planted on warm borders, by placing hoops over the beds, on which to spread mats or other covering, in severe weather; or you may defend them in any temporary manner, which your own judgment may devise.

3.—*Small Sallading.*

Small sallading, of every kind, will now require to be sown on a slight hot-bed, under the protection of frames and glasses.

4.—Spinach, Corn Sallad, and Winter Cresses.

The winter spinach should now be kept entirely clear of weeds, and the plants thinned where they are too close; otherwise they will not be sufficiently strong to endure the severity of the winter frosts.

Corn sallad, and winter-cresses, should be treated as directed for spinach, but the distance of two or three inches, plant from plant, will be sufficient for these. This should be done early in the month, as it would injure the plants, to expose those parts suddenly to a severe frost, which might have been covered by such as were pulled up.

5.—Cabbage, and Cauliflower Plants.

During the continuance of mild weather, give your cabbage and cauliflower plants every advantage of receiving free air, to inure them, by degrees, to bear the cold, by taking the glasses off entirely, in the warm part of the day; but always be careful to place them over the frames again, at night, and also in wet, and cold weather. Notwithstanding, when the days are cold, except there is a sharp cutting wind, the glasses may be raised, in the day time, a little behind, for the admission of air, but whenever severe frosts set in, the beds must be carefully covered at night, and at other times, when necessary to protect the plants from being frozen.

6.—Rhubarb, Sea-Kale, &c.

Sow the seeds of rhubarb, sea-kale, skirrets, dill, alisander, and any other kinds of seed that do not vegetate freely, if kept out of the ground till spring. The frost will do them no injury. See the directions of those under their separate heads in March, &c.

7.—Mushroom Beds.

Mushroom beds must be carefully protected from wet and frost, see page 120.

8.—*Albium Fistulosum, or Welch Onion.*

The young crops of Welch onion, should be kept entirely free from weeds, and thinned for use; the remaining plants will stand the winter, and produce a supply in the spring.

9.—*Housed Onions.*

Dried onions should be occasionally examined, and such as are beginning to rot, carefully taken away.

10.—*Patience Dock.*

The patience dock is a perennial root, affording early spring greens, which are by many preferred to spinach. The leaves are very large, and succulent, and are produced in great abundance. The plant may be propagated by sowing the seed, any time this month, while the ground continues open; they will come up freely in spring, and afford stronger and earlier stocks than those sown in March, &c. The seeds to be sown pretty thick, in drills eighteen inches apart, and covered about half an inch deep. When the plants are about two inches high, thin them to the distance of eight inches from one another. It may also be propagated, by parting the roots, in the spring or late autumn months, and planted in rows as above; and by treading the heads down, in summer, as it rises for seed, you will have a succession of foliage.

11.—*Forcing Asparagus.*

Previous to the setting in of hard frost, cover such beds of asparagus as contain the plants intended to be forced, during the ensuing months, with straw, light litter, boards, &c. sufficient to prevent the ground from being frozen, so that the roots may be taken up when wanted.

12.—*Winter Dressing of Artichokes.*

Much of the future success of artichokes depends on their receiving a suitable winter dressing. Although this should not be performed, as long as the

weather continues mild, in order that they may have every possible advantage of being strengthened, and gradually inured to as much cold as they can well bear, yet it should not be deferred until the setting in of hard frost, which would prevent the necessary care altogether.

First, cut all the large leaves close to the ground, leaving only those small ones which shoot from the hearts of the plants. After this, hoe and mark out a trench from fourteen to sixteen inches wide, between each row, then lightly dig the surface of the beds, from trench to trench, carefully burying the weeds, gather the earth round the crowns of the plants, to the height of about six inches, placing it gently between the young rising leaves, without burying them entirely under it. Then dig the trenches one spade deep, and throw the earth equally on each side of the plants, level the ridges, and give them a neat rounding form, cast the loose earth out of the bottoms of the trenches evenly over the ridges, in order that the water from heavy rains, may speedily pass off. The trenches ought to have a gentle declivity, as water lodging about the roots in winter, would injure them more than the severest frost.

As soon as the hard frost comes on, cover the plants, with straw, light dry litter, &c. to preserve the crowns of the roots from its rigour. With this care the roots will be preserved through the winter, and in March, give them their spring dressing as directed in page 53.

The artichokes will be benefited, by laying on a coat of old rotten manure, previous to the digging of the trenches, and covering it over with earth; in the spring following dig it in.

13.—*Preserving Cabbages and Borecole, for winter and spring use.*

Previous to the setting in of the hard frost in winter, take up your cabbages and savoys, observing to do it in a dry day; turn their tops downwards, and let them remain so for a few hours, to drain off any water that

may be lodged between the leaves; then plant them down to the heads in a ridge of dry earth, in a warm sheltered place, close to one other, previously taking off their loose hanging leaves. Erect over them a low, temporary shed, to keep them free from wet, let this covering be open at both ends, to admit the air freely, in mild dry weather; these ends are to be closed with straw, when the weather is very severe.

The green and brown coloured borecole being hardy, will require but little protection; they may now be taken up, and planted closely together in a ridge; and during severe frost covered lightly with straw, this will preserve them sufficiently, and during winter the heads may be cut off, as they are wanted for use. The stems may be taken up, and planted in rows, as early as the frost will admit, they will produce abundance of excellent sprouts.

14.—*Cauliflowers and Broccoli.*

Examine your late cauliflowers and broccoli, and continue to treat them, as directed for cauliflowers, No. 4, in last month.

Such plants of either kind, as are not likely to flower before the severe frosts, should be taken up and planted as directed for cabbages, where they will sometimes produce fine flowers all winter. Or,

They may be planted in dry sand, in a warm cellar, where they will also flower in winter, and tolerable good flowers have been produced, from strong plants, hung up in a damp warm cellar.

15.—*Preserving Potatoes and Turnips.*

Where there are plenty of good warm cellars, when these esculents are taken out of the ground, the tops of the turnips cut, and both of them as much as possible cleared of earth, they may be preserved through the winter in warm dry cellars, which will afford an opportunity of picking and sorting them. Or they may be covered in the earth, by choosing a dry sheltered spot of ground, and laying straw at the bottom, and sides, as well as covering the top therewith, and over the

whole a sufficient covering of earth, to protect the roots effectually from frosts. An opening may be made on the south side of this heap, and completely covered with bundles of straw, so as to have access to the roots at all times, when wanted, either for sale or use.

16.—*Preserving Carrots, Parsnips, Beets, Salsafy, &c.*

The best method of preserving these plants, through the winter, after they are taken up, and the tops cut off, is to expose them for a few hours to the air, and then pack them separately, in dry sand, in a warm cellar, free from moisture, from whence they may be taken, whenever wanted.

Scorzonera, Hamburg or large rooted parsley, skirrets, Jerusalem artichokes, turnip rooted celery, and a sufficiency of horse radish, for the winter consumption, may be preserved in the same manner.

17.—*Garlic, Rocambole, and Shallots.*

Garlic, rocambole, and shallots, may be planted in this month, the earlier it is done, the better. When planted at this season, in dry, light, rich ground, the roots will be much larger than if deferred till spring.

For the method of planting these, see page 51.

Southern States.

Transplant finally, cabbage and cauliflower plants, but where the winter frosts are rather severe, the latter will require some protection. Plant early Mazagan, Windsor, and long podded beans. Sow early peas; earth up your advancing crop of cabbages, &c. celery, cardoons, &c. blanch endive; sow spinach, radish, lettuce, and likewise small sallading of every kind, on warm borders; the latter will require the protection of a frame and glasses, in frosty weather.

In the southern states, the most certain way of obtaining cauliflowers in perfection, is to be provided with a sufficient number of bell, or hand glasses,

which will afford them protection through their winters.

Borecole will stand the southern winters, in open bed, without any protection whatever.

FOR DECEMBER.

1.—*General Remarks.*

AS this is frequently one of our most severe months, every judicious gardener will use all possible precaution, to preserve his plants from its rigour. Let him have his frames lined round, as heretofore directed, and be careful to be provided with boards, mats and other covering. If this provision be neglected, he may, in one or two nights, lose the principal part of his valuable plants.

Should the weather prove mild, and the ground continue open, in the beginning of the month, you may complete any work recommended to be done in November, which has unavoidably been omitted.

If the weather continue open, and your last month's work forwarded, carry dung into the various parts of the kitchen garden, spread it, and trench the ground, laying it in high ridges, to be improved by the frost, &c.

Should the ground be so frozen as to prevent its being trenched, carry in manure, and lay it in a suitable place, to have it at hand, as soon as the ground can be worked. Clean all the seeds, which remain in their pods, or capsules, put them up carefully and label them. Prepare all tools which may be wanted in spring, and take all possible care to prevent every unnecessary delay, at that season.

2.—*Cauliflower and Cabbage Plants.*

In mild dry weather, take the lights off your cauliflower plants, every day, and cover them at night; pick off the decayed leaves, which, if suffered to remain on, would be very injurious to the plants, especially if the weather should be so severe, as to render it improper to uncover the beds, for several days successively.

When it is not safe to take off the glasses entirely, let them be raised upon props, two or three inches at the back of the frames, in the middle of the day, to give fresh air to the plants.

The glasses must be covered over every night, with shutters, and mats over them, or with straw, &c. and even in the day time, when the frost is very severe, but no opportunity of admitting light to the plants, and allowing them fresh air, should be omitted, when it can be done with safety. The frame must be carefully lined all around the outside, to prevent the frost from penetrating the ends and sides.

Examine those in the cellar, and cut them as they flower.

The early Smyrna, York, sugar loaf, and other tender kinds of cabbage-plants, require nearly the same treatment as the cauliflower, but, being more hardy, less covering will be necessary, and they may be allowed more air. As there is nothing more injurious to either, than to be kept too closely covered; no opportunity, therefore, should be omitted, if but for half an hour at a time, to allow them light and air, provided it can be done with any degree of safety.

The savoy, flat Dutch, drum-head, and other late kinds, will keep, when planted in warm borders, with very little protection; arches made of hoops, &c. should be erected over them, on which to lay mats, straw, branches of evergreen, shrubs, &c.

3.—*Care of Lettuce Plants.*

The care of lettuce plants, being the same now, as in the ensuing month, the instructions in page 12 and page 109, may be referred to.

4.—Small Sallading.

Where small sallading, such as cresses, rape, mustard, lettuce, radish, &c. is required at this season, these seeds must be sown in a hot-bed, protected with a good frame and glasses, and also sufficient protection of mats, &c.; do not cover the seeds deeper with earth, than what is sufficient barely to hide them. Manage these hot-beds, as repeatedly directed heretofore.

5.—Mushrooms.

Particular care must now be taken to preserve the mushroom beds from frost or wet; they must be covered with a sufficiency of dry straw, and over this, mats. After heavy rains or snow, they should be examined, and if you find the covering of the beds wet, next the earth, take it entirely away, and immediately replace it with dry straw. Where proper care is taken, there will be a constant supply of mushrooms for the table, even in the most rigorous seasons. See general directions, page 109.

6.—*Forcing Asparagus.*

Hot-beds may now be made for forcing asparagus, to supply the table about the latter end of January; for at this season, it will be full six weeks, from the time of making the beds, before the asparagus will be fit to cut. For the method of making and managing them, see page 13.

Southern States.

In such of the southern states, as have but very slight frosts during the winter, you may sow on warm borders, for early crops, small quantities of carrots, parsnips, onions, beets, radish, spinach, parsley, &c.; earth up late celery and cardoons, tie up endive for blanching, and plant out in rows, up to their heads, such cabbages, as are intended for seed. Take care to set each kind apart by itself, and at a considerable distance from any other; for if contiguous, the farina

of the one would impregnate the stigmas of the other, and neither kind would retain its original purity.

Plant early Mazagan, Lisbon, long-pod, and Windsor beans, and sow early hot-spur, and other early peas; earth up the crops of peas and beans, which were put in the ground the preceding months; as they advance in growth, cover them at night and in severe weather, with long dry straw, which can be conveniently removed, when a favourable change takes place, and laid on again, when found necessary.

Plant out garlick, rocambole, and shallots, likewise large onions for seed; sow, as directed in March, the seeds of rhubarb, skirrets, alisanders, dill, and such other kinds of seed, as do not vegetate so freely, when kept till spring.

FRUIT GARDEN,

FOR

JANUARY.

1.—*General Observations.*

In large kitchen gardens, espaliers for fruit trees, are generally introduced. These are hedges of fruit trees, trained up regularly to a trellis or lattice of wood work, which may either be made by driving stakes into the ground, or forming them of neat framed work; in either case, they should be from five to six feet in height, round the borders of the compartments of the kitchen garden, where they will be both profitable and useful. They produce fine fruit, and afford protection to the plants in the different apartments, round which they are placed.

Trellises are also occasionally used for wall-fruit, where the branches cannot be immediately nailed thereto; also in training wall-trees, in forcing frames, &c. and are formed according to taste, from four, five, six, seven, to eight, nine, or ten feet high.

If the trellis is to be of framed work, it ought not to be made till the second or third year after planting. While they are young, it will be sufficient to drive a few short stakes into the ground, to which their branches should be fastened, in a horizontal position, in order to train them for the espalier. For direc-

tions for planting espalier and wall-trees, see March and October.

2.—*Pruning Apple and Pear-trees, in Espaliers, &c.*

Apple and pear-trees being of the spur-bearing kind, and their mode of bearing similar, whether in espaliers, or trained to walls or board fences, one method of pruning will answer for all these kinds. They produce fruit, upon short natural spurs from the sides and ends of the branches, and the same shoots continue to bear for many years, increasing their quantity of fruit-spurs, as they advance in length; therefore, in pruning these trees, the branches and shoots are not to be shortened, but trained horizontally to the espalier, &c. until they have reached the full extent designed, excepting irregular and superfluous shoots, and such suckers, as spring up from the shoots which have been pruned, all which must be cut away, carefully preserving all the natural fruit-spurs; then train in all proper branches and shoots, from four to five inches asunder, without shortening them. The branches of these trees will, after the third year of their training, form short spurs, from half an inch, to one or two inches in length, and from these the fruit is to be produced. But if more lateral shoots are required, then it may be proper to cut off a fruit bearing spur, after which pruning, suckers will arise therefrom, one or more of which may be trained in the place where it is wanted.

Apple and pear-trees being hardy, may be pruned at any time during the winter months, but the latter end of February is a preferable time, in the middle states, and the beginning of March, in the eastern states. Cherries may be pruned at any time, when the winter is mild. In the southern states, this month will answer very well, for pruning almost all sorts of fruit trees.

3.—*Cherries and Plums.*

When the weather is mild, plums and cherries, raised against walls or espaliers, may be pruned. As they

are also of the spur-bearing kind, they may be treated as directed for apples and pears, in No. 2, which see.

As it was observed in No. 2, that shortening the branches of apple, pear, plum, and cherry trees, was not always proper, however, in some particular cases, it may be done, as for example:

When the trees for walls and espaliers are one year old, from the budding or grafting, which ought to have been performed as near the ground as possible, it will be proper to shorten them near the insertion of the bud or graft, which is called heading down the trees, in order to force out lateral branches; but this should not be done till February or March, cutting them down to three or four eyes, which will produce lateral shoots near the head of the stock; after this, the branches are to be trained, as before directed, taking care to procure branches, where they may be necessary, by a proper pruning. All the young shoots of the last summer's growth, besides what may be sufficient to train, as before mentioned, must be cut off close to the place from whence they arise, leaving none but fruit-spurs.

4.—*Peaches, Nectarines, and Apricots.*

As these produce their fruit principally on the young shoots of the former summer, the fruit blossoms come directly from the eyes of the shoots; a full supply, therefore, of these must be reserved annually, in every part, to train in for bearing; besides these, preserve also a portion of the fruit-spurs on the two and three years branches; all such spurs as are strong, and stand in suitable places, should be preserved, especially where they do not interfere with the yearling shoots. As the general branches and bearing shoots are to be trained to the wall or espalier, horizontally, about four or five inches distance, all superabundant shoots must be pruned out annually, always cutting off the weakly and decayed shoots.

Before pruning these trees, it would be proper to unbend all the young shoots, which were nailed up last summer, and also some of the larger branches, by

which means they may be better examined, and the pruning performed more correctly.

In shortening the shoots, you should cut them to an eye, that is likely to produce a shoot for a leader, the ensuing season; these eyes being easily distinguishable from the fruit or blossom buds, by their longer, flattish form, the others being roundish, swelling, and turgid.

When one tree is pruned, bind it immediately close to the trellis or wall, laying the branches horizontally, perfectly straight and parallel to each other, at the distance of four or five inches.

6.—*Gooseberry and Currant Bushes.*

Gooseberry and currant bushes, bear not only on the one and two year old branches, but also on the several years' branches, generally upon small spurs rising all along the sides; and in each winter pruning, it will be requisite to cut out any decayed or irregular branches, and after retaining a supply of the last summer's shoots, prune out the rest.

Let the gooseberries be always kept thin of branches, and none of them suffered to grow across one another, but all pruned to a regular order, so that the main bearers may stand six or eight inches distant at the extremities, and generally keep the middle hollow.

Currant bushes should likewise be kept thin and regular, the general branches should be pruned to about six or eight inches asunder, taking out all superabundant, irregular and cross branches, as well as old decayed shoots. See further in October.

7.—*Protecting the roots of newly transplanted Trees.*

The new planted fruit trees, should be protected from the frost, by laying good litter on the surface of the ground, over their roots, particularly the choicest of the stone fruit kinds.

8.—*Forcing early Strawberries.*

About the latter end of this month, begin to make a hot-bed to raise a few early strawberries, those which

are planted now therein, will produce fruit to gather in March or April. For method of making hot-bed, see kitchen garden, page 6.

But a tan-bark hot-bed made in a bark pit, defended with a proper frame and glasses, would generally be more successful in producing early fruit.

The strawberry plants should be potted in September, as there directed.

If planted in a hot-bed, let them have air at all opportunities possible, refresh them occasionally with water, and treat them as directed for cucumbers, &c. page 9.

Where there is the convenience of the forcing house, &c. early strawberries may be raised in great perfection, with but little trouble.

9.—*Forcing Fruit trees, for early Fruit.*

Where you have the advantage of forcing houses, hot walls, &c. furnished with fruit trees, for producing early fruit, as cherries, apricots, peaches, &c. prepare for it now, by shutting the glasses close, and about the middle of the month make the fire, and where there is, in the forcing departments, a pit, in which to make a hot-bed of tanner's bark, or hot horse dung, make the hot-bed first, and in a fortnight's time, kindle the fires. See fruit garden for February, No. 6.

10.—*Forcing Frames.*

A forcing frame is a kind of glass case, or light building, fronted with glass frames, in which to force flowers and fruits to early perfection, as also to preserve various kinds of exotic plants, during winter, in our climate. The erection of such a frame, should be fixed, fully to the exposure of a south sun; the length, ten feet, (or any other length) the width, from six to fifteen, and from five to ten feet high, having an upright back of wood, or brick, and a front with upright glass work, six feet high, from the top of which a glass roof is carried, in a sloping direction to the top of the back or main wall, designed for the reception of various sorts of flower plants,

small flowering shrubs, dwarf fruit trees, esculents, &c.

These frames may be employed to advantage in the vicinity of large towns, for forcing early plants for market, and by them, various kinds of esculents, &c. may be obtained in February, March and April, which in the open ground, would not be matured till May, June or July.

In these forcing frames may be introduced pots of strawberries, kidney beans, roses, honeysuckles, jasmines, and other flowering shrubs; carnations, wall-flowers, stock-gilliflowers, &c. &c.; also curious annuals, and other rare plants. You may likewise have several sorts of dwarf fruit trees, as May-duke cherries, peaches, nectarines, figs, apricots, &c.

The following is an explanation, under separate heads, of the general construction of each sort of these frames, according to the materials used, viz. 1, Dung heat. 2, Bark bed heat. 3, Fire heat.

1. *Dung heat.*—This is not only the most simple and cheap kind of forcing frame, in its construction, but also considerably the easiest to manage in working, with respect to obtaining a supply of heat, as it may be forced by repeated linings of hot stable dung, against the back and ends. This frame is formed with an upright back and ends, of pine planks, the length from ten to twenty feet or more; the width from three to five feet, and five or six feet high. It should be made of two inch pine plank, tongued or grooved, and closely joined, so that no steam, from the dung, may pass into the frame, raised six or seven feet behind, and but twelve inches in front, both ends to be neatly sloped from the front to the back; the glass-work to range from the upright in front, sloping upward to the back wall, to about a foot width at the top, where the ends are to rest upon a suitable frame of wood-work; and bars, three inches wide, must be fixed from the back to the front for the support of the lights, as in common hot-bed frames, and the top of all to be boarded as close as possible; within side may be two or three ranges of narrow shelves, along

the back and ends, for pots of small plants, and the bottom levelled, on which to place pots of larger sorts.

From the foregoing an idea of the construction of a dung-heat forcing frame, may be formed, which may be arranged and altered to suit taste or convenience. This kind of frame may be used with advantage where dung can be easily obtained.

The season to use this frame is January and February, and may, in the middle states, be continued till the latter end of April, for the forcing of fruit trees the beginning of February, is time enough, but the plants which are intended to be forced, may be protected, from the severe frosts, by the frame, but at other times let them enjoy the full air, till they are to be forced.

When the plants are placed in the frame, agreeably to your prospect, put on the lights, and having a sufficient quantity of fresh stable dung, prepared as for common hot-beds, let it be piled up, close against the back and ends, a yard wide at bottom, drawing it gradually to a foot width at the top of the frame, let this lining be of a regular slope that the wet may run off as much as possible, and as it settles down, add fresh dung, so that the lining may be kept always to the top of the frame.

In three or four weeks the heat must be renewed, by a lining of fresh dung, in the same manner. When a dung-heat forcing frame can be made, of such capacious dimensions, so as to admit of a substantial hot-bed of dung internally, to produce an increased degree of heat, it may be used to greater advantage in many instances.

2. *Bark Bed heat.*—This may be properly called, a forcing house, and it is worked by the assistance of a tanner's bark hot-bed, formed in a pit, within side the whole length.

This frame may be constructed either of wood or brick work, with an upright front of glass, six feet high, and a sloping roof of glass, ranging from the upright front to the top of the back wall, the glass work, in every part, should be made to move on and off, as

well as to slide backward and forward, to give air, &c. and at one end near the back wall, a door to enter; and within side a pit for the bark-bed, three feet deep; part sunk, and the greater part raised, continued the whole length and width, except a foot and a half alley.

The pit may be filled any time before February; the bark will support a growing heat three months, and if then stirred up to the bottom, will continue the heat two months longer.

The heat of the bark-bed, will warm it internally, so as to forward any sorts of hardy flowers and fruits, to perfection, at an early season.

Fresh air must be admitted, at all suitable opportunities, by sliding some of the glasses, in the day time, keeping them close at night, and covering them with mats, or closing it at night, with sliding shutters, and then mats.

3. *Fire-heat.*—A forcing frame of this kind is worked by having a stove or stoves behind, from thence communicating the heat, by internal flues, running the whole length of the back wall, in three returns one above another, and continued in a flue round the front. A frame thus constructed, will answer not only for ripening fruit at an early season, but forwarding such plants as require art to protect them, &c.

This forcing house must be formed of brick work, i. e. the back and ends: the whole front must be of glass, the length may be twenty, thirty, forty feet, or more, the width ten to fifteen feet, and height, eight or ten. The number of stoves must be proportioned to the heat required. The whole bottom space, within this frame, must be of rich garden mould, at least two spades deep.

The season for making the fires, in order to force trees and plants, is any time in January, or the beginning of February, for if the trees are forced too early there may be some danger of their failure, as in very severe weather, the air cannot be admitted so freely as to impregnate their fruit.

The fires are to be lighted in the stoves, every afternoon, about four or five o'clock, and if kept up till ten or eleven, will sufficiently warm the internal air of the house, till next morning, when if very cold, frosty, or cloudy damp weather, a moderate fire may be made occasionally. Fresh air must be admitted in fine days, and as the days grow longer, and the power of the sun greater, allow a greater proportion of air. Water the plants when necessary. Hot walls, or fire walls, may be with propriety considered as the last, and are principally designed for forcing the larger standards of fruit trees, &c.

11.—*Vineries.*

Buildings of various kinds, for forcing vines, have been constructed for this purpose, for ripening the choice kinds of late grapes. When they are constructed as the fire heat frame, *(last art.)* and a lattice, fixed at ten or twelve inches from the back flue, to which the vines should be trained. Sometimes the vines are planted on the outside of the building, and introduced through holes, into the front, as low down as can be done with convenience. They are, also, by others planted inside, near the front, and trained up, to neat trellises, close under the sloping glass roof.

Southern States.

In the southern states, where the winter frosts are not severe, apple, pear, peach, nectarine, apricot, cherry and plum trees, for both espaliers and standards, also almonds, quinces, gooseberries, and currants, may be planted, as well as the hardy fruit bearing trees, in the orchard.

Each of the above kinds may be pruned, see March and October.

FOR FEBRUARY.

1.—*Pruning Wall and Espalier Trees.*

PEACHES, nectarines, and apricots, should be pruned in the middle states, about the latter end of this month; and the beginning of next, in the eastern states. This must be performed before the buds are much swelled, as then there would be a danger of separating many of these. For the method of pruning them, see January, No. 4. page 142. Fruit Garden.

2.—*Pruning Apples, Pears, &c.*

Let all the apple, pear, plum, and cherry trees, against walls or espaliers, be finished pruning, this month, see No. 2 and 3, January, Fruit Garden.

3.—*Prune and Plant Gooseberries and Currants.*

Gooseberries and currants should be pruned now, if before omitted; for directions, see Fruit Garden, January, No. 6. page 143.

Gooseberry and currant bushes may be planted, towards the end of this month, if the weather is favourable, in standards, at six or seven feet distant from each other.

Red and white currant bushes may be planted against walls, board fences, &c. for earlier fruit some gooseberry bushes of the best kinds may be planted near north walls, which is the most eligible situation for them in our climates. Currant bushes may also be planted and managed as directed in page 25, Kitchen Garden, for February.

For the method of propagating them, see Nursery for March and October.

4.—Raspberries.

Raspberries may be pruned towards the latter end of this month, especially if the weather be tolerably mild, clear away all the decayed stems, which bore fruit last season, leave three or four of the strongest of last year's shoots, standing to each root, cut off all above that number, close to the surface of the ground, and take away all straggling shoots.

Each of the shoots which remain, should be shortened, to about six feet in length, and if surrounded with posts and iron hoops, as directed in Kitchen Garden, page 25, for February, No. 26; the shoots may be fastened thereto, which will prevent their being borne down, by heavy rains, or violent winds in summer.

As soon after pruning as possible, dig the ground between the plants, and clear away the rubbish.

The Antwerp raspberries, which had, on the approach of winter, been laid down and covered with litter, &c. as they are more tender than the others, ought to remain undisturbed till the opening of the mild weather, in March, unless their buds begin to swell considerably.

5.—Strawberries.

Continue to force strawberries, as directed last month, in the Fruit Garden, No. 8, page 143, also in Art. Hot-house for January.

6.—*Forcing early Fruit in Forcing-Houses.*

The beginning of this month, if not done before, you may proceed to forcing fruit trees, in forcing-houses, &c. by aid of stoves, or other artificial heat. The proper kinds are plums, peaches, nectarines, apricots, cherries, figs, grapes, &c. Having young trees, for the purpose, which are bearers, and planted a year or two before, in the borders, &c. of the forcing departments; or you may have some in large tubs.

to remove therein, at forcing time, occasionally. The trees may either be wall trees, or espaliers trained to a trellis, or dwarf standards. There may also be some cherries, in small headed standards, and dwarfs, and vines trained up under the sloping glasses.

Let moderate fires be made every afternoon and evening; and if there is a pit, within the forcing-house, in which to have a bark or dung hot-bed, make the bed a week before you begin the fires; if a bark bed is intended, fill the pit with new tanner's bark; or if a dung hot-bed, make it with fresh hot dung, and when it has settled down six inches, lay that depth of tan at top. These beds will support a constant moderate heat, wherein you may plant pots of dwarf cherries, and of scarlet and Alpine strawberries, which will bear fruit, very early, in great perfection. The fires to be made, and attended to, as directed in January, page 146. However, where there is no internal hot-bed, a constant, moderate, regular fire heat, must be kept up. Admit fresh air, as before directed in January, and afford occasional waterings.

For the due temperature of heat, see page 27, February, Fahrenheit's Thermometer, for melons, &c.

In the foregoing departments, place also pots of currants, gooseberries, raspberries, &c. &c.

FOR MARCH.

1.—*Pruning Pears, Plums, Cherries, Apples, &c.*

APPLES, pears, cherries, plums, peaches, nectarines, apricots, quinces, &c. should be entirely finished pruning this month, if not not done before. For direc-

tions, see Fruit Garden, January, page 142, and February, page 149; also, see Orchard for January and February.

2.—Training young Apricots, &c. Trees, for Espaliers and Walls.

At this season, head down young wall or espalier trees, &c. previous to their first training; such as peach, almonds, nectarines, and apricot trees, planted against walls or espaliers, any time last fall, with their budding shoots at full length, which, when a year old, if designed for espaliers, &c. must be headed down near to the bottom, to force out lower branches. The heads should be cut down to about four or five buds from the bottom, and if there are two shoots from the same stock, let both be cut down in like manner; this should be performed just as the buds begin to swell.

Such young trees, of the kinds above, as were headed down last year, which have produced four or more shoots, should now have these shortened, so as to encourage each shoot to produce two or three new ones this season. Let each shoot be shortened in some degree of proportion to its strength; thus shoots of two feet, may be pruned to twelve or fifteen inches, those shoots of twelve inches, to six or eight inches, and so in proportion, but yet with some attention to the particular situation of the shoots. See Fruit Garden, January.

3.—Pruning and training Apple, Pear, Plum, and Cherry Trees, for Espaliers, and Walls, &c.

These may be treated nearly as directed for No. 2.

4.—Pruning Fig Trees.

Fig trees should never be pruned, in the middle and eastern states, before the severity of the winter is over. However, the sooner this work is done, after the severe frosts cease, the better; for if delayed too long, the trees would bleed and be injured thereby;

but in the southern states, the late autumn pruning is to be preferred.

Fig trees require a considerable degree of heat; they will thrive better, and bear more abundantly, in the eastern and middle states, if planted against walls or board fences, in warm exposures; they ought, therefore, always to be trained to these.

In pruning fig trees, leave a sufficient supply of the last summer's shoots, from the bottom, in all parts possible; prune out the ill placed and superfluous stems, with some of the old bearers and naked old wood, so as to have room to train the proper shoots, in order that there may be a succession of young bearers at moderate distances; for these young shoots bear their fruit the ensuing season; the fig being always produced only on the one year old wood.

Leave the branches in general, about five or six inches asunder, all at full length; prefer the most promising and firm, to supply the stock, cutting out all useless and old wood quite close.

Every year train in some young shoots near the bottom, in order to have a succession, to supply the places of long, old, naked branches, such, not being furnished properly with young wood, should be cut off close, leaving no stumps. The young branches of fig trees, should by no means be shortened or topped, but each be left at full length, and only the dead ends be cut off.

When the tree is pruned, immediately train in the general bearing branches, and nail them to the wall or fence, horizontally, six or seven inches distant from each other.

5.—Planting and propagating Fig Trees.

Fig trees ought to be planted at this time; they are generally propagated by suckers, layers, or cuttings, and may be planted where they are to remain.

To raise them by layers, lay young branches of one or two years growth, four or five inches deep in the earth, with their tops as upright as possible, fastening them down with forked sticks; they will be suffi-

ciently rooted by next spring, when they may be cut off and removed.

To propagate them from cuttings, select the most perfect of the last year's shoots, from twelve to fifteen inches, cutting them off with the tops entire, and with an inch or two of the two year old wood; plant them six or eight inches deep, in a rich soil, in rows two and a half feet asunder, and a foot apart in the rows, in the nursery, where they may remain for two years, at which time, they will answer to plant out.

They may also be raised, by sowing the seeds in boxes, the beginning of this month, setting the boxes in a hot-bed, and about the middle of May, remove them into the shade, where they can have the morning sun till ten o'clock, and the afternoon sun from four, giving them water when necessary, and protect them from the winter frost by frames or otherwise; when a year old, they may be planted out, as directed for cuttings.

The following varieties are considered the best kinds, and are placed in the order they ripen.

1. The brown or chesnut Ischia fig. 2. The black Genoa fig. 3. The small white early fig. 4. The large white Genoa fig. 5. The black Ischia fig. 6. The Malta fig. 7. The Murrey fig. 8. The green Ischia fig. 9. The Madonna fig. 10. The long brown Naples fig. 11. The common blue or purple fig. 12. The yellow Ischia fig. 13. The small brown Ischia fig. 14. The Gentile fig.

These might be cultivated to the greatest perfection in the southern states.

6.—*Preserving the Blossoms and young Fruit of Wall and Espalier Trees.*

It often happens, that in a forward vegetation, the early blooming fruit trees, especially those in warm situations, produce a full show of blossoms, which, if afterwards attacked by frost, are destroyed. In such cases, some of the choice kind of wall and espalier trees, should be well defended with mats nailed to the

top of the wall, and fastened also at bottom, at night, to be taken off in the day time.

7.—*Planting Fruit Trees.*

Fruit trees of all kinds may be planted any time this month, before they begin to shoot; let it be done in mild weather. The best directions which can be given, for the general climates of the United States, is to plant out all kinds of trees, just before the buds begin to swell.

8.—*Gooseberries and Currants.*

Prune gooseberries and currants, if not yet done, the beginning of this month. See Fruit Garden for January, No. 6.

Gooseberries and currants may be planted from the beginning to the middle of this month; they require rich ground, frequent manuring, and digging about their roots.

9.—*Pruning and planting Raspberries.*

Prune raspberries, if not done before. See directions, February, No. 4.

New plantations of raspberries may now be made from the young shoots or suckers, which arise from the old roots, or as these plants grow to a great length during the summer, a sufficient number of their branches may be laid in the ground, early in the fall, and pegged down; these will strike root, and may be planted out in the spring.

10.—*Dig the fruit tree Borders* early in this month.

11.—*Strawberries.*

Strawberry plants should receive their spring dressing, as soon as the ground can be dug between the rows.

Strawberries may be planted in this month, but if it had been done in September or October, it would be preferable; plant them in rows eighteen inches asunder, and twelve inches plant from plant.

The Alpine or monthly strawberry, to be planted in like manner; let there be room for their runners to take root, the runners often bearing the largest and fairest fruit. This kind continues bearing ripe fruit, from May until November.

12.—*Forcing Fruit Trees.*

Continue the care of fruit trees, now coming forward in forcing houses, &c.

FOR APRIL.

1.—*Planting Fruit Trees.*

SUCH fruit trees, as are not yet burst into leaf, may be still planted out; be careful however to give them frequent watering.

2.—*Destroy Insects on Fruit Trees.*

Carefully pick webs off the fruit trees, and destroy insects, as much as possible.

3.—*Protecting Wall Trees from Frost.*

Continue to protect your fruit trees from frost, as directed in March, No. 6.

4.—*Strawberry Beds.*

These should be kept perfectly clear of weeds, and also nip off the runners, except such as may be wanted for new plantations, being careful to preserve no runners from the male plants.

5.—*Early Fruits in Forcing.*

Let the same care be taken now, as directed in February and March.

FOR MAY AND JUNE.

1.—*Wall and Espalier Trees.*

IN the early part of this month, examine these trees, and where a superabundance of unnecessary shoots appear, rub them off carefully, but do not destroy any fruit buds.

2.—*Thinning of Fruit.*

Apricots, peaches, and nectarines, in favourable seasons, sometimes set abundance of fruit, more than the trees can properly nourish; therefore, thin them carefully, leaving only a moderate supply.

3.—*Protect Cherries from Birds.*

This may be done, as soon as the cherries begin to ripen, by hanging nets over the espaliers.

4.—*Cleaning the Fruit Tree Borders, &c.*

These borders should be kept perfectly free from weeds, by hoeing, &c. and all insects must be destroyed as much as possible. A small water engine, to throw water against such trees, as are infested with insects, would have a good effect, and also refresh the trees in dry weather.

Strawberry plants will now be coming into full bearing, and if watered between the rows occasionally, the fruit will be larger and more abundant.

☞As the Fruit Garden, in these two months, require nearly the same kind of attention, they are placed under one head.

FOR JULY.

1.—*Wall and Espalier Trees.*

EXAMINE carefully, this month, wall and espalier trees, rubbing off all irregular shoots, and training in all such regular growths, as are designed to remain; pick off all punctured and decayed fruit, rake them out of the garden; also such as have fallen, and destroy them, otherwise the worms, which are in the fruit, will soon come to the fly state, and commence their depredations.

Suffer no shoots to remain on the stocks of the grafted or budded trees, which would certainly rob them of their proper nourishment.

2.—*Budding or Inoculating.*

For this subject, see this article in nursery department.

3.—*Destroy Wasps, &c.*

Before the fruit begins to ripen, hang up glass vials filled with honey and water, or sugar and water, in different parts, among the wall, espalier, and standard fruit trees, in order to destroy wasps, ants, &c.

4.—*Clean the Borders, &c.*

Hoe and clean the ground about the wall and espalier trees, to destroy the weeds, which would rob the trees of their just portion of nourishment.

FOR AUGUST.

1.—*Espalier Trees, Budding or Inoculating.*

SEE Nos. 1 and 2, of last month.

2.—*Fig Trees.*

The wall and espalier fig trees will now be ripening their fruit; they should be kept regularly trained, but the knife must not be used, except to irregular shoots, as from those of this season's growth, fruit is to be expected next year, and these bearing principally towards the extremities, ought not to be shortened.

FOR SEPTEMBER.

1.—*Wall and Espalier Fruit Trees.*

WHERE there are any straggling branches of these trees, train them in, and fasten them firmly in their places.

The early kinds, attached to the walls of the forcing house, should, towards the end of this month, be pruned and trained close to the trellis, that their buds

may be prepared, as early as possible, for the application of the artificial heat.

2.—*Gathering Fruit.*

Gather apples and pears when they are perfectly ripe, on a dry day.—For further directions see Art. Orchard, October.

3.—*Prepare for Planting.*

Towards the end of this month, prepare the places, in which fruit trees are to be planted, in October or November, by trenching the ground, eighteen inches deep, adding a full supply of well rotted manure.

4.—*Strawberries.*

There are six principal varieties of the *Fragaria*, or strawberry, cultivated in gardens. 1. Fragaria, Virginiana, common wood, or scarlet strawberry. 2. Hautboy strawberry. 3. The Chili strawberry. 4. Alpina, alpine or monthly strawberry. 5. F. Ananas, or pine apple strawberry. 6. The white strawberry.

In the cultivation of strawberries, much depends on the choice of plants, for if they are taken promiscuously, without care in selecting them, you will, in a short time, have all male plants. The Hautboy strawberry, is more subject to this, than any of the other kinds. The plants should therefore be taken from the most fruitful ones, and the runners especially, which shoot from, and are next to the bearing plants, should always be preferred. Endeavour therefore to make yourselves acquainted with the difference between the male and female parts of this plant, as many of the blossoms abound with stamina, or male organs, and have but few styles, or female organs; these male plants, of course, ought to be pulled up from the beds; by this means you may select the best for your new plantation. The plants should never be taken from old neglected beds, as these will almost always fail to produce much fruit.

In general, this plant loves a strong loamy ground: which should be somewhat moist, as they thrive best in such a soil.

When the weather is moist, make your general plantations of strawberries. The sets of young runners, next the full bearing vines, should be taken off in June and planted in the nurseries, for this purpose, and when transplanted into their beds for fruiting, the roots should be trimmed, and the decayed leaves and runners (if there be any) picked off.

The ground should be previously well manured and dug, then laid out into beds of three and a half feet wide, for convenience, with alleys of fifteen inches between. The roots are to be planted in rows about fifteen inches, and fifteen inches apart in the rows. Close the earth about each root, and water them plentifully, when finished.

Keep the old strawberry beds clean from weeds. See October.

If you intend to force strawberries in the winter, or early spring months, they must now be put into pots, of about seven inches diameter at top. Water the whole, when potted, and remove them to the shade, for eight or ten days, till fully rooted, then plunge them to their rims, in an open place, in the garden, watering them occasionally, till the approach of winter, when they must be placed under the protection of frames and glasses, till taken into the forcing department. The alpine and scarlet kinds are the best for forcing, they should be strong two year old plants.

FOR OCTOBER.

1.—*Winter Pears and Apples.*

GATHER your winter pears and apples. See article Orchard, for October.

2.—*Pruning.*

When the trees have completely shed their leaves, you may begin to prune many kinds, but by no means do it before.

The pruning of peach, nectarine, and almond trees, would not be proper to be done, before the latter end of February, in the middle states, nor before the first week in March, in the eastern states. In the southern states, this work may be performed at any time between the period of shedding their leaves, and the beginning of January.

Apples, pears, cherries, and plums, being hardy trees, may be pruned at any period, between dropping their leaves, and the first swelling of their blossom buds.

For the method of pruning the various kinds of wall and espalier fruit trees, &c. See January, Fruit Garden, page 141, &c.

3.—*Planting Fruit Trees.*

Towards the latter end of this month, most sorts of fruit trees may be transplanted, and particularly such kinds as have shed their leaves. The ground must be dry and not subject to water lying on it, in winter; each tree must be strongly fixed in its place, by tying it with straw, mats, &c. to a stake, drove into the ground; it must be so fastened as not to be rocked about by the winds.

In the southern states, as well as in other parts of the union, these plantations should all be completed before the buds begin to swell.

The latest ripening fruits, particularly late peaches, should be planted in a place of warm aspect, and also some of the earliest kinds, to have them in perfection, at an early period.

Apples and pears for walls and espaliers, should be planted twenty feet from each other.

Plums and cherries to be planted from fifteen to eighteen feet, if designed for espaliers.

Peaches, apricots, and nectarines, not less than fifteen feet, if against walls, &c.

4.—Planting Gooseberries.

Towards the latter end of this month, or early in November, is the most suitable season to plant these trees. They may be set round the borders of the Kitchen Garden, from two to two and an half feet from the walks, and about six feet distant from each other; always keep the ground under, and immediately contiguous to each bush, entirely free from weeds or plants of any kind, as it will endanger the fruit becoming mildewed and ruined.

When you have an opportunity of obtaining superior kinds, you may take cuttings from these, and plant them where they are to remain for fruiting. Old bushes seldom produce well, after transplanting. Previous to planting, prune them to one clean stem, of ten or twelve inches, before the head is formed.

For further information, see Nursery for March, &c.

5.—Pruning and Propagating Gooseberries.

The latter part of this month, and the whole of next, will be a very suitable season for pruning gooseberries. For directions see January, page 143.

New varieties of this valuable fruit may be obtained by sowing seeds of the best kinds you are able to procure, either in this, or any of the autumn months, in beds, in the open ground, or in boxes of good earth. From these seeds the plants will rise freely in spring; and by the succeeding spring, they may be planted in nursery rows, till they show specimens of fruit, then those that are good, may be taken due care of, the others, by far the greater number, may be thrown away. When sown, cover them near half an inch deep, with loose, rich earth. If kept till spring the seeds will not vegetate freely.

6.—Planting Raspberries.

If raspberries are planted between the middle and latter end of this month, and the shoots are strong ones, they will strike new roots before winter, and produce some fruit next season, but the succeeding

year, they will bear plentifully. For further directions see Fruit Garden for March.

The Antwerp raspberries being somewhat more tender, and more liable to suffer by the frost, than the common kinds, take care to prune them in the manner directed next month.

7.—*Propagating Fruit Trees by Layers and Suckers.*

The young shoots of mulberries, figs, filberts, vines, &c. may now be laid in the earth, they will all be fully rooted in twelve months.

Suckers may be taken from berberries, filberts, &c. digging them up, with good roots to each, and planting them where they are to remain.

8.—*Dressing Strawberry Beds.*

The old strawberry beds should have their winter dressings this month; they should be cleaned from weeds, and the runners taken off close to the plants; loosen the earth between the rows to a moderate depth, with a small spade, taking care not to disturb the roots; line out the alleys, and let them be dug, breaking the earth very fine, and spread a portion of it over the beds, between and round the roots, but do not bury their tops. A slight top dressing of well rotted dung will be proper. This dressing will be a means of producing a more plentiful crop next season.

9.—*Preserving Stones and Kernels of Fruit.*

Preserve in damp earth or sand, the stones of the various kinds of fruit, you intend to sow for stocks. Pear and quince kernels may be preserved in dry sand. To provide apple seed, procure as much fresh pomace, as may be necessary, wash the seed clean, and when you have a sufficient quantity for your purpose, dry it well on cloths, secured from wet, afterwards put it by in bags or bottles well corked, and labelled.

FOR NOVEMBER.

1.—*Planting Espalier Trees, &c.*

IN the early part of this month, plant apple, pear, quince, plum, cherry, peach, nectarine, almond, and apricot trees, either for espaliers against walls, or for half or whole standards; the ground on which these are planted, should lie dry in the winter. See Fruit Garden for last month.

2.—*Gooseberries, Currants, and Raspberries.*

Gooseberry seed may be sown as directed in page 166, to obtain new varieties. Currants and raspberries may in like manner be raised from seed, and varieties sometimes obtained thereby.

The red and white Antwerp raspberries are excellent fruit, but less hardy than the other varieties; it will, therefore, be necessary in the eastern and middle states, to lay down the shoots of the present season, immediately previous to the severe frosts, first cutting off, close to the ground, the shoots which bore fruit the preceding summer. The supernumerary, weakly shoots may likewise be cut off, and also the straggling tops, or they may have a general and final pruning.

Then dig the earth between the rows, and add some very rotten manure, after which, being provided with some hooked wooden pegs, and a number of long pliant hoop poles, lay down each row of shoots, gently on one side, on these lay the poles lengthwise of the rows, pegging them down with the hooks, so as to

keep the shoots close to the earth; after which cover all over with light litter of any sort, in order to protect the plants from the effects of the various changes of the weather, as well as from frost. Here they will remain safe till the beginning of March, when the litter is to be taken off, the planks raised up, and the ground receive its spring dressing.

3.—*Fig Trees.*

Pick off from the fig trees, all the fruit which remain, of whatsoever kind; protect the fig trees with mats, or some other kind of covering, and spread litter around their roots.

FOR DECEMBER.

1.—*General Remarks.*

KEEP all the apartments, where your winter fruit is stored, free from frost. Examine and pick your fruit once in ten or twelve days, and remove all decayed or tainted fruit.

Take all moss from off your trees, and remove it from the garden.

Fasten all the loose branches to the walls or espaliers.

Repair all decayed espaliers; prepare stakes and other materials for this work, that it may be performed, as soon as the frost will admit, and attend to every other kind of business, which will forward you in the spring.

Carry well rotted dung, rich earth or compost, and spread it on the borders for your espalier and wall trees.

2.—*Pruning Apples and Pears.*

Apples and pears being hardy, may now be pruned.

Gooseberries and currants, being also hardy plants, may be pruned in any of the winter months; but if it is requisite to plant cuttings, this pruning ought to be done, when the ground is free from frost, so as to admit of the shoots being planted therein.

3.—*Prepare for Forcing Fruit Trees.*

Towards the latter end of this, or the beginning of next month, put the lights on your fire heat forcing frames, such as described in January Fruit Garden, page 144, having previously pruned and nailed up the trees in due order.

The trees should not too suddenly experience the transition from extreme cold, to vegetating heat, but let it be gradually done. For general information, see Fruit Garden, January, page 150, and Feb. page 146.

Southern States.

In such of the southern states, as have not severe frost in winter, you may now prune apples, pears, &c. and every other kind of fruit tree, except the fig and orange species. All the above, except the orange, may now be planted in those places with safety. For the method of pruning, see Fruit Garden, January, page 141, and of planting, see Fruit Garden for March, page 150.

ORCHARD,

FOR

JANUARY.

1.—*Situation of an Orchard.*

THE most suitable situation for an orchard is a sloping south-east aspect, receiving the influence of the morning sun, and sheltered by its slope in some measure, from the pernicious effects of northerly, and more particularly from the blighting north-east winds. Rich strong loams, with a portion of oyster shells, or other calcareous substances, will be advantageous. All dry, rich lands will admit of flourishing apple trees, and it is a general observation, that shelly land, capable of producing good wheat, is an excellent soil. Newark, in the state of New-Jersey, is famed for its apples and cider; the soil around is of a red shelly kind.

2.—*The Trees of an Orchard.*

As the orchard is designed to furnish an ample supply of the most useful kinds of fruit, it is therefore appropriated to such as are termed standards, such as apple, pear, plum, cherry, peach, apricot, almond, and nectarine trees; also medlars, mulberries, Spanish chesnut, and English walnut. The two last are more particularly serviceable, to be placed as boun-

daries to large orchards, as they will afford some protection to the other trees, from the keen, cold, piercing winds and frosts.

As the apple is the most important fruit, and uniformity is to be attended to, the most suitable distance for this tree, which is forty feet in the rows, and forty feet row from row, may be considered as a rule, although when the whole orchard is of peach trees, twenty-five feet would be sufficient.

Of the varieties of the apple, William Coxe, on fruit trees, enumerates 133 kinds, raised in the United States, but as some persons prefer the natural fruit in their orchards, were the seed to be sown, the trees allowed to fruit in the nursery, and the good kinds only to be planted in the orchard, the variety would be without bounds; the middle states are particularly suited for this purpose, for if the seeds of natural fruit are planted, few would be wildings, and many would produce valuable fruit of new kinds.

The same author enumerates eighty-eight sorts of pears.

The variety of peaches is stated at thirty-eight.

Apricots, six kinds; plums, eighteen kinds; cherries, twenty sorts.

3.—*The requisite attention to be paid to the Trees.*

As the trees are sometimes subject to be injured by moss, to remedy this, scrape it off with a round iron scraper; also dig round the trees, and bring fresh mould to them. When found necessary, thin their branches, cut off all dead or irregular shoots, as well as those which appear to be cankered, and in a decaying state, all of which should be cut off to some healthy leading branch.

Be particular to use a saw, for taking off the limbs and branches that are too large for the knife, and smooth the cut parts with a drawing knife, which is the most suitable for large amputations.

In pruning, a good general rule is, never to shorten the branches, unless to improve the figure of the tree, and then to take them off very close, at the separation,

so that the wound may heal well and soon. If the wound be very large, cover it with tar, or thick paint; if small, fresh cow-dung will be the best plaster, secured by a bandage of linen.

FOR FEBRUARY.

1.—*General Observations.*

AT this season, the important work of pruning, scraping, and rubbing off the moss, &c. from the trees, may be performed.

A man with a scrubbing brush, or good birch broom, and soap suds, can effectually scrub off the moss in a wet day, or it may be done with a scraper, as directed in January, No. 2, which see.

Trees are sometimes injured by canker, which is produced by very small insects or worms; in this case, cut out the whole of the cankered part to the sound wood, wash the part well with the following solution, then give it a coat of tar or paint.

Dissolve a drachm of corrosive sublimate in a gill of spirits, and when completely dissolved, add thereto four quarts of soft water. This solution will destroy both the worms and the eggs, and not injure the trees. Great care should be taken, not to let any of it get on you, particularly in the eye.

Peach trees, towards the end of this month, should be carefully examined near the surface of the ground, and a little under it, and the worms picked out with the point of a knife, afterwards wash them with the above solution, and then apply the tar or paint.

Any old rotten manure will suit an orchard, but cow-dung, hog-dung, the sweepings of poultry and pigeon houses, emptying of drains, the cleanings of slaughter houses, and when rotten tobacco can be procured, these are all to be preferred.

A method adopted by the compiler, proved of singular benefit to an orchard, which was to bare the roots of the trees for some distance, in the fall, cover them over about five or six inches with coarse litter, over this throw a quantity of snow, and then a little more litter, then occasionally, as the snow fell, more snow, and in the last of the winter and beginning of spring, more snow; by these means, the trees were kept from vegetating two or three weeks longer, and when the blossoms of the neighbouring orchards were entirely destroyed by frost, these had not opened, and the season proving favourable afterwards, an abundant crop was the result. Coxe's Treatise on Fruit Trees recommends a regular cultivation and manuring of orchards, which will undoubtedly improve them.

2.—*Root Pruning.*

Frequently, when a tree has stood for a long time, it becomes sickly, and the fruit inclines to ripen before it has had time to come to maturity. In this case, as early in the spring as it can be done, open the ground three or four feet round the tree, and with a chissel, cut off all the roots, which you discover to tend downwards, close to the horizontal roots. If there should be any appearance of rot or mould among the roots, cut them off, and after taking out, if possible, all which are cut off, wash the remaining parts with a weak ley or soap suds; place flat stones under the parts cut, to prevent the new roots from striking perpendicularly into the earth.

When any fruit trees grow luxuriantly, and produce no fruit, open the ground around them, and cut through some of the largest descending roots, which will soon bring them into a bearing state, but be careful that the roots at the amputations be cut off smooth, and then covered over with tar or paint.

All writers on the subject agree that a young orchard should not be planted, where an old one formerly stood, as the insect called curcullio, with its numerous brood, remains there, and would infallibly injure the new plantation.

Hogs and poultry, especially turkies in great number, are recommended to be allowed full range in the orchard, as they make great destruction of these insects, and the hogs devouring the punctured fruit which fall, prevents in some measure their increase; this can only be done in those years when the ground lies uncultivated.

In pruning, at the time of planting out a young orchard, you should have in view, the advantage of keeping the middle of the tree open, in order that the fruit, in every part of it, may receive the free influence of the sun and air. See March.

FOR MARCH.

1.—*Pruning.*

FINISH pruning, of all kinds of fruit trees, as early in this month, as possible. In those parts of the union where the winters are very severe, and the weather very changeable, spring pruning is to be preferred, and must particularly be performed on stone fruit.

2.—*Preparations of the Ground.*

After making choice of a place, suitable for the orchard, if it has been under pasture, for some years, give it a general and deep ploughing the spring before planting, and two or three times in the course of the summer following, to rot the sward, pulverize the earth, and prevent the growth of weeds.

Early in October, plough it again, very deep, by a double ploughing, harrow it well, and let it remain till the time of planting the trees.

3.—*Choice of Trees, &c.*

In making choice of trees, take those that are healthy and strong, without any blemishes, appearance of canker or worms in the bark; their heads should be well formed, their stems stout, proportionate to their heads, straight, clean, and from five to six feet high, to the spreading of the branches, and not more than two or three years old from the bud or graft; take none but such as have been budded or grafted, as they may probably be only wildings, at any rate, the fruit cannot be depended on.

They should be taken up with care, so as to preserve their roots as entire as possible; prune off any bruised or broken parts of the roots, shorten large stragglers, and top the ends of the roots, in general with the knife, always prune these roots on the under part sloping outwards.

4.—*Method of Planting.*

If the trees have been trained, so as to have regular heads, they must be planted with them entire, only cutting off irregular or ill placed shoots.

Having the trees in readiness, stake out the ground, fifty feet, every way, if the generality of them are apple trees, but if a peach orchard is intended, twenty-five feet will be sufficient.

At the time of planting, dig a capacious hole, if the soil is strong enough to admit of it, two or three spits deep, if not, as deep as it will allow; throw the last spit of earth over the surface of the ground, and carefully mix with the remainder of that taken out of each hole, a wheelbarrow full of rich compost.

Pear trees may be planted in the same manner, as also mulberry trees, if you desire to have these in the orchard.

The boundaries of orchards may be planted with chesnuts, and English walnuts, which will not only

afford abundance of fruit, but protect the other trees from tempestuous winds.

The English walnut, or, as it may properly be called, the Madeira walnut, is more profitable in the United States, when in its bearing state, than any other tree whatever, a single tree in the city of New York, has been leased for several years for one hundred dollars per annum.

FOR APRIL.

General Observations.

THE observations given in January, February, and March, were such as to deserve attention in those months. Nothing remains further to observe at this time, except to offer this general rule, always to plant or transplant your fruit trees before a leaf expands, or a blossom appears.

FOR MAY.

1.—*General Observations.*

THE newly planted trees will require to be frequently watered, sprinkling over the branches as well as the roots.

Such of your young trees, as are overburthened with fruit, must have them judiciously thinned, leaving

only as many on, as they may be capable of bringing to maturity.

2.—*Caterpillars.*

Caterpillars are the worst enemies to an orchard, if neglected, but they are easily destroyed, when their nests are small, and the insects tender, by crushing them in the nest.

FOR JUNE.

General Observations.

ATTEND to the remarks of last month, and if you observe any of your young fruit punctured by insects, and in a declining state, gently shake the trees, pick up, and carry to the pigs, such as fall to the ground.

FOR JULY.

General Observations.

SOME of the early productions of the garden may now be gathered for use. Pick and carry away all decayed and fallen fruit, and if any of the trees are cankered, or have much gum, cut out the decayed part, and rub tar over the wound. It would be of use to turn pigs into the orchard, at this season, to eat up the decayed fruit, and destroy the numerous insects therein.

FOR AUGUST.

General Observations.

HAVE the same care to the orchard, as directed in last month.

Such of your standard peach and other trees as are overburthened with fruit, and likely to break down, should be supported with props, to which such loaded branches should be bound with bands of hay, taking care to place some between the branch and stake, lest the bark should be injured. These supports should be taken away, as soon as the fruit is off.

FOR SEPTEMBER.

Collecting Ripe Fruit.

SUCH apples and pears, as have attained to full maturity, must be gathered in a dry day, wipe them well, and lay them carefully by.

When it is intended to plant fruit trees in October and November, the ground must be now prepared, as directed in March, No. 2.

FOR OCTOBER.

1.—*Collecting Fruit.*

WINTER pears and apples should generally be gathered this month; some will be fit for pulling in the early part, others not before the middle or latter end thereof.

None of the more delicate eating pears should be suffered to remain on the trees till overtaken by frost, for if they are touched with it, many of them will rot in a very short time.

The varieties of the apple come in successively, from July to the end of this month. Many different kinds fill up the season between the earliest and latest, some are in the highest perfection for the table in August and September; the later excellent kinds of autumn and winter apples attain to maturity in October, when they are to be wholly gathered.

The maturity of the apple is discoverable partly by the plump size of the fruit, and in some kinds, by its turning yellowish; in others, a lively red prevails, whilst in others, the fruit undergoes no material change of colour; but in apples in general, a certain indication of maturity is their easily quitting the branches when plucked, while a promiscuous few drop naturally from the trees; a distinguishing criterion is also derived from cutting one of the crop in two; in a ripe apple, the pips or kernels are of a dark brown colour, on which appearances, all sorts of keeping apples are to be gathered. All such as are intended for long keeping, should be carefully gathered by hand,

that they may not be bruised, as they unavoidably would, if shaken down; they should likewise be gathered in dry weather, when the tree and fruit are both alike dry, and in gathering, keep each sort separate.

2.—*Storing the Fruit.*

As they are successively gathered, house them in the fruitery, or some dry close apartment, and before placing them where they are to be permanently deposited, lay the principal keeping kinds in heaps on the floor, each sort separately, covered with mats or dry straw, thus to remain ten or twelve days to sweat, and discharge the watery juices, which will improve them in flavour, they will also be better preserved thereby; then let them be wiped dry, and deposit some upon shelves, &c. others packed in hampers and baskets, in layers of dry paper, or soft loose straw, observing generally to cover the whole with dry clean straw, several inches thick, to exclude the external air, damp, frost, &c. Examine them occasionally, to pick out such as decay; and they will thus keep sound and good all winter, the following spring, and some until summer.

3.—*Planting and Pruning Fruit Trees.*

For general instructions on this head, see *article Orchard*, for January, February, and March; also *Fruit Garden*, October.

FOR NOVEMBER.

1.—*Planting and Choice of Situation, &c.*

THIS being the most suitable season for planting out fruit trees of all kinds, after remarking that the

soil should always be a dry rich loam, the observations made in January and February are referred to.

Apples, pears, quinces, plums, cherries, peaches, nectarines, apricots, and almonds, may now be planted; also, walnuts, chesnuts, filberts, persimmons, medlars, berberries, and every other kind of hardy fruit trees. See March, No. 4.

2.—*Pruning.*

You may now commence the pruning of all fruit trees, except stone fruit, as there is more time at this season, than in the spring; but if it was not for the pressure of business, the spring would be preferable for all; the stone fruit must be omitted pruning till then.

FOR DECEMBER.

General Observations.

THE pruning of apples and pears may be continued. Rub and scrape off all moss from your fruit trees, wherever it appears. You may cart manure into the orchard, and spread it over the whole ground, in order to have it under culture, as much as well may be, as it is generally allowed, that frequent cultivation of orchards is materially to their advantage.

The method of retarding the blooming of the trees, proposed in February, No. 1. *General observations,* is recommended for consideration.

NURSERY,

FOR

JANUARY.

1.—*General Observations.*

THE cultivation of timber, or trees for building, falls peculiarly under this division. The propagation of fruit trees and ornamental shrubs is likewise comprehended in it; while the *Orchard*, *Fruit Garden*, and *Shrubbery*, exhibit the course of culture, for keeping the plants, introduced into each, healthy and fertile.

Trees afford shade and shelter to particular walks and districts; some species will grow in low and marshy places, others on the sides of dry hills, many in waste places, not adapted for the cultivation of other plants or vegetables; at the same time, it must be remembered, that most trees discover a preference for some specific kind of soil, in which each species will best succeed; a few show a remarkable repugnance to one peculiar sort of ground, and some trees require a fertile soil, in order to flourish.

Although the consumption of timber has not so diminished the number of forest trees, in the United States, as to render the cultivation of it at present, so important an object, as it is in Europe, yet it requires to be noticed.

The *deciduous* and *evergreens* are clear distinctions. Deciduous trees remain leafless, from November, till April or May.

Evergreen plants change their foliage by degrees, and preserve the old leaves a long while after the formation of the new; the partial saverings, and nicely distributed regenerations of foliage, do not take place at any determinate time. The leaves of all evergreen shrubs and trees have a thin compact skin over their surface; this may be perceived by macerating them in water, in order to separate the pulp from the leaves; the separation cannot be effected, until a thin parchment-like case is taken off. The continuance of the leaf throughout winter on the tree, and its detention of verdure, is perhaps owing, in a principal degree, to this close covering. The evergreen plants perspire but little, compared with the deciduous; their nutritive juices are endowed with an oily quality, which secures them from being injured by frost, in proportion as it is limited or abundant, so that many evergreens grow in the coldest regions. From the presence of fixed oils, there is good reason for supposing, that a certain degree of circulation goes on in their vessels, throughout the winter.

Abercrombie, in his Practical Gardener, divides these trees and shrubs into two tables.

Table I. *Deciduous Trees and Shrubs.*

1 *Acer*, Maple, 12 kinds, amongst which is the Sugar Maple
2 *Æsculus*, Horse Chesnut, 4 kns.
3 *Amorpha*. Bastard Indigo
4 *Amygdalus*, Almond, Peach, &c.
5 *Andromeda*, Marsh Cistus, 4 ks.
6 *Annona*, Custard Apple
7 *Aralia*, Angelica tree
8 *Aschyrum*, St. Andrew's Cross
9 *Atriplex*, Orach, 2 kinds
10 *Azalea*, American Honeysuckle. 5 kinds
11 *Baccharis*, The Groundsel tree
12 *Berberis*, Berberry Bush, 4 kns.
13 *Betula*, The Birch tree. 5 kinds
14 *Betula Alnus*, Alder tree
15 *Bignonia*, Catalpa or Trumpet Flower, 3 kinds
16 *Beupleurum*, Hare's ear
17 *Calycanthus*, Carolina Alspice
18 *Caprinus*, Horn-bean, 3 kinds
19 *Caprinus Ostrya*, Hoplike Hornbean
20 *Ceanothus*, New-Jersey tree
21 *Celastrus*, Staff tree, 2 kinds
22 *Celtis*, Nettle tree or Lote, 3 kns.
23 *Cephalanthus*, Button tree
24 *Cercis*, Judas tree, 2 kinds
25 *Chionanthus*, Snow drop tree
26 *Clematis*, Virgin's Bower, 9 kns.
27 *Clethra*
28 *Calusea*, Bladder Senna, 3 kinds
29 *Comptonia Asplenifolia*, Ferm leaved Gale
30 *Coriaria*, Tanner's Sumach
31 *Cornus*, Dog Wood, 3 kinds

32 *Coronilla*, Jointed podded Colutea
33 *Corylus*, Hazle and Filbert Tree, 5 kinds
34 *Cratægus*, The Hawthorn and wild Service Tree, 15 kinds.
35 *Cupressus*, Cypress Tree.
36 *Cytisus*, Trefoil Tree, 8 kinds
37 *Daphne*, Spurge Laurel, 8 kinds
38 *Diospyrus*, Date Plum
" Lotus, European
" Persimmon American
39 *Dirca Palustris*, Leatherwood
40 *Euonymus*, Spindle Tree, 4 kinds
41 *Fagus*, Beech Tree
42 *Fagus Castanea*, Chesnut Tree
43 *Fagus Pumila*, Chinquapin
44 *Ficus Caria*, Fig Tree, see Fruit Garden
45 *Fothergilla*, 2 kinds
46 *Fraxinus*, Ash Tree, 7 kinds
47 *Genista*, Spanish Brown, 8 kinds
48 *Gleditsia*, Honey Locust
49 *Glycine*, Knobbed root Liquorice vetch
50 *Halesia*, Snow-drop tree, 2 kinds
51 *Hamamelis*, Witch hazel
52 *Hedera*, Ivy
53 *Hibiscus*, Syrian Mallow
54 *Hippophae*, Sea Buck thorn
55 *Hydrangea*, 4 kinds
56 *Hypericum*, St. John's Wort, 7 kinds
57 *Jasminum*, Jasmine, 8 kinds
58 *Ilex*, Holly
59 *Ilea*, The greater and less
60 *Iva*, False Jesuit's Bark
61 *Juglans*, Walnut
62 *Laurus*, Bay Tree, 3 kinds
63 *Ligustrum*, Privet
64 *Liquidamber*, Sweet Gum Tree
65 *Lonicera*, Honey Suckle, 12 kinds
66 *Lotus*, Bird's Trefoil, 2 kinds
67 *Magnolia*, Laurel leaved Tulip tree, 3 kinds, and see Table II.
68 *Menispermum*, Moon Seed, 2 kinds
69 *Mispilus*, Medlar, 7 kinds
70 *Mimosa*, Tree sensitive plant
71 *Morus*, Mulberry, 4 kinds
72 *Myrica*, Candleberry Myrtle, 2 kinds
73 *Nyssa Aquatica*, Water Tupelo Tree, 2 kinds
74 *Ononis*, Rest Harrow, 2 kinds
75 *Passiflora*, Passion Flower, 2 kinds
76 *Periploca*, Virginia Silk
77 *Philadelphus*, Mock Orange, 3 kinds
78 *Pinus*, including the Larch, 8 kinds
79 *Platanus*, Plane Tree, 2 kinds
80 *Populus*, Poplar Tree, 10 kinds
81 *Potentilla*, Shrubby Cinquefoil
82 *Prinos*, Winterberry, 2 kinds
83 *Prunus*, Plum Tree, see Fruit Garden
84 *Prunus Cerasus*, Cherry, see Fruit Garden
85 *Pietea*, Shrubby Trefoil
86 *Punica*, Pomegranate tree, single and double
87 *Pyrus*, The Pear Tree
88 *Pyrus Malus*, The Apple tree
89 *Pyrus Cydonia*, The Quince.
90 *Quercus*, The Oak, several sorts
91 *Quercus Suber*, The Cork tree
92 *Rhamnus*, Buckthorn, 6 sorts
93 *Rhododendron*, Dwarf Rosebay
94 *Rho dora*, Rosebay
95 *Rhus*, including the Sumach, and Poison Oak, 8 kinds
96 *Ribes Rubra*, Red Currant
Alba, White do.
Nigra, Black do.
97 *Ribes grossularia*, Gooseberry
98 *Robinia*, False Acacia, 10 kinds
99 *Rosa*, The Rose tree and sweet-briar, upwards of 26 kinds
100 *Rubus Idæus*, Raspberry. 7 kinds
101 *Rubus Frutucosus*, Blackberry, 5 kinds
102 *Salisburia Adiantifolia*, Maidenhair
103 *Salix*, Willow tree, 46 kinds
104 *Salsola*, Glass Wort
105 *Sambucus*, Elder tree, 4 kinds
106 *Syderoxylon*, Iron Wood
107 *Smilax*, Rough bind weed, 7 kinds
108 *Solanum*, Night Shade, 3 kinds
109 *Sorbus*, Sorb or Service tree, 3 kinds
110 *Spartium*, Broom. 6 kinds
111 *Spiræa Frutex*, 9 kinds
112 *Staphylea*, Bladde rNut, 2 kinds
113 *Stuartia*, 2 kinds
114 *Styrax*, Storax tree, 3 kinds
115 *Syringa*, Lilac. 3 kinds
116 *Tamarix*, The Tamarisk tree, 2 kinds
117 *Teucrium*, Germander, 4 kinds
118 *Tilia*, Linden tree, 5 kinds
119 *Ulmus*, Elm, 6 kinds

120 *Vaccinium*, Whortleberry, 10 kinds
121 *Viburnum*, Wayfaring tree, 8 kinds, among which are the Guelder Rose, double Snowball tree
122 *Vitex*, Chaste tree
123 *Vitis*, Grape Vine, many varieties
124 *Zanthoxylum*. Tooth-Ache tree Also, 2d Clava Herculis

Table II.

With respect to a few of the plants in the following table, such as the *Arbutus*, *Uva Ursi*, the *Astragalus*, and the *Ledum*, it should be remarked, that if the soil in which they are planted, does not suit their constitution, they will frequently drop their leaves in a cold winter.

1 *Andromeda*, Marsh Cistus
2 *Arbutus*, Strawberry tree, 5 kinds. Uva Ursi
3 *Artemisia*, Wormwood
4 *Astragalus*, Tragacanth
5 *Bacchalia*, Groundsel
6 *Bignonia*, Trumpet Flower, (climbing)
7 *Buxus*, Box tree, 3 kinds
8 *Cistus*, Rock-Rose, 15 kinds
9 *Clematis*, Virgin's Bower
10 *Cnearum*, Widow-wail
11 *Cupressus*, Cypress tree, 3 kinds
12 *Cytisus*, Trefoil tree, 2 kinds
13 *Daphne*, Spurge Laurel, 2 kinds
14 *Elæagnus*, Oleaster, 2 kinds
15 *Empetrum*, Crowberry
16 *Ephedra*, Shrubby horsetail, 2 ks.
17 *Epigæa*, Trailing Arbutus
18 *Erica*, Heath, 10 kinds
19 *Euonymus Americanus*, Evergreen Spindle tree
20 *Euphorbia*, Spurge
21 *Gaultheria*
22 *Genista*, Evergreen Cytisus
23 *Hedera*, Ivy, 3 kinds
24 *Hyssopus*, Hyssop
25 *Ilex*, Holly tree, 6 kinds
26 *Juniperus*, Juniper tree, including the Cedar, 10 kinds
27 *Kalmia*, 4 kinds
28 *Laurus*, Bay tree
29 *Lavandula*, Lavender, 2 kinds
30 *Ledum*, Marsh Cistus, or wild Rosemary, 4 kinds
31 *Lavatera*
32 *Ligustrum* Privet
33 *Lonicera*, Honeysuckle, 3 kinds
34 *Lycium*, Box thorn
35 *Magnolia grandiflora*
36 *Mespilus*, Medlar
37 *Olea*, Olive tree, 2 kinds
38 *Philyrea*, Mock Privet
39 *Phlomis*, Jerusalem Sage, 5 kds.
40 *Pinus*, The Pine tree including the Fir
41 *Prinos*, Winter berry, 2 kinds
42 *Prunus*, Laurel, 3 kinds
43 *Pyrus*, Comprising the Crab evergreen
44 *Quercus*, The Oak, several varieties
45 *Rhamnus*, Buckthorn, 3 kinds
46 *Rhododendron*, Dwarf Rosebay, 4 kinds
47 *Rosa*, Evergreen double flowered Musk Rose, Evergreen Sweet-briar
48 *Rosmarinus*, Rosemary, 2 kinds
49 *Ruscus*, Butcher's Broom, 4 kinds
50 *Ruta*, Rue
51 *Salvia*, Sage, 4 kinds
52 *Santolina*, Lavender Cotton, 4 kinds
53 *Spartium*, Broom
54 *Taxus*, Yew tree
55 *Teucrium*, Germander
56 *Thea*, The Tea plant
57 *Thuja*, Arbor vitæ, 2 kinds
58 *Thymus*, Thyme, 5 kinds
59 *Ulex*, Furze, Whin or Gorse
60 *Vaccinium*, Bilberry or Whortleberry
61 *Viburnum*, Tinus, Laurustinus
62 *Vinca*, Periwinkle, 2 kinds
63 *Viscum*, Misseltoe. It has been found upon the Willow, Hazel, Oak, Pear, Apple, and Crab tree, upon the latter principally
64 *Yucca*, Adam's Needle, 3 kinds may be raised in the open ground, Gloriosa, Recurva, and Filamentosa. Other species of this plant require a Greenhouse or Bark stove

The seasons for planting out all kinds of trees, are generally denominated autumn and spring. In mild winters, the former is so prolonged, and the latter begins so early, that the frosts of the winter do not always totally suspend, for a great length of time, the plantation of hardy trees and shrubs. However, between September and April, some months are preferable and safer for removing these than others. The foregoing tables are introduced, with the intent that the following directions, Nos. 2 and 3, may be useful to the gardener herein.

2.—*Times for Planting Deciduous Trees.*

The eligible time for planting these, *begins* with the fall of the leaf, in each respective species, which, although it varies a little, according to the season and constitution of the plant, is always near the middle of October, and thence to the time when the sap begins to rise, and the bud to swell in the spring, which is generally about the middle of March; all kinds of hardy deciduous trees may be then transplanted in open weather.

The end of October is a principal time; the whole of November is very good; for in being transplanted, soon after the leaf decays, the plant has the advantage of the considerable interval, which usually elapses before the frost sets in hard, and if the root puts forth fresh fibres before the winter, the plant will be so well established the following summer, that the drought, in the hottest season, will not hurt it.

In December, the general transplanting of the deciduous tribe, may be continued in mild weather; but if the more tender and curious exotics are removed, the ground over the roots should be mulched, to keep out the frosts that must be expected; this is done by laying some dryish straw or long litter, to a good thickness on the surface, and as far round as the roots spread, and a little farther.

In the course of January, during settled and open weather, any of the hardy deciduous trees and shrubs may be also planted, the more delicate being treated

as before recommended, to keep the frost from the roots. If the ground, designed to receive the plants, is subject to wet, it is better to defer the removal of them until February. Some fruit, as peaches, nectarines, apricots, plums, and cherries, will generally succeed better, if planted out in the spring, than if planted in autumn.

In February, all deciduous kinds may safely be removed; if the weather be open, most sorts will take root at that season freely.

You may continue to transplant them without risk, until the middle of March, and if any occasion for new plants arise, even when March is drawing to a close, most sorts will yet succeed. But the plantation of deciduous trees, should be deliberately and firmly undertaken, and finished about the middle of the month.

Roses, planted in March, will flower the same year, but the sooner they are planted, the better they will strike root, and flower the sooner.

Water, after transplanting, may be necessary, if the removal be not till thus late; and when curious and tender sorts are inserted in fresh ground, it may likewise be expedient, to spread some mulch round the bottom of the stem, to prevent the sun and wind from rendering the earth about the roots too dry.

Having specified the extremes, within which it is advisable to keep, in planting deciduous trees, for common purposes, it may be serviceable to state the latitude to which early transplanting, or late transplanting, for particular objects, may be best nurtured.

Early Transplanting.—If new trees in some particular place be wanted, you may remove the sorts, in which the leaves fall the soonest, as early as the first week of October is past; give a good watering, immediately after putting them in the ground, and if the weather be dry, and the exposure warm, repeat the watering twice or three times, and they will strike the same season, without requiring more.

Late transplanting.—If there be any vacuity in spots set apart for shrubs, the plants may be removed pretty

safely, till the second week in April, but they must not only be watered well at planting, but refreshed with water frequently during the dry intervals of summer, to keep them alive. To provide a bloom of roses, as late as July, August, and September, the transplanting of an assigned number is sometimes postponed till April or the beginning of May; plenty of water must be given them till they are well rooted.

3.—*Times for Transplanting Evergreens.*

Towards the end of September, you may begin to transplant evergreens with safety, especially if the weather proves moist; if it be dry, they must be plentifully watered at planting, and once or twice afterwards. They will probably strike new roots before winter.

Hardy plants may be removed any time in October, the sooner the better, that they may take root, before the setting in of frost. Choose a time when the ground is in a moist state.

Throughout November, planting may be continued, during open weather; by the latter end of which month, it is desirable, that the autumn planting of evergreens should be finished.

When there is a necessity for removing ornamental shrubs in December, it will be advisable to mulch round the bottom of the stem, as soon as they are planted. The objections to the transplanting evergreens in December, or the latter end of November, however mild at the time, arises from the daily probability of sharp frost coming just afterwards, for the evergreens being in a state of growth in the herb, are liable to be injured in the young shoots and leaves, if severe weather occurs soon after they are removed; and in this respect, they are less hardy than the deciduous tribe.

Towards the end of January, hardy evergreens may be removed, if frosts do not forbid, but no general transplanting of them should be undertaken, till Feb-

ruary or March. Frequently when the weather is mild and open in January, the ground is too wet.

If February prove settled and mild, there will be no risk in transplanting; the latter part of the month is generally the best time for removing evergreens.

When it is open weather in March, they will take root most freely in fresh earth; if it be a dry time, give water, and lay moist mulch round the stem, to prevent the effects of the sun and wind drying the earth excessively.

Evergreens may be very successfully removed, till the middle of April, at which period the general transplanting should be completed; guard the earth over the roots, from the drying effects of the sun, &c. as before directed.

The proper times for transplanting box, and other evergreen edgings, are the same, as for the larger plants.

Some few kinds of evergreens, the arbutus, for example, the rhododendron, and the cypress, may be transplanted even in May, but they will be lost, if not well watered.

4.—Removal of Plants.

The least hardy plants, which, as curious exotics, are often of the most valuable kinds, should be taken up with a ball of earth to their roots. As evergreens are always in a state of growth, it is desirable to have them so dug up, on all occasions, that the old mould may adhere about the roots.

5.—Additional Remarks.

In the commencement of a subject so important, as directions for the proper management of a nursery, the introducing a general table of deciduous and evergreen trees and plants, appeared the most suitable, to convey the necessary instruction, relative to the time and method of planting, and although not only the fall planting, but the winter and spring plantings are introduced into this month, the subject is by this means kept more connected, and can with more facility be

recurred to, than to be scattered over different parts of the work. The different species of each genus, are not enumerated, as that would require too large a scope, and be more useful to the botanist, than to the practical gardener. However, if a complete list be desired, it may be found in Miller's Gardener's Dictionary.

It is improper to enrich nurseries with dung, unless it is very old, and almost converted to earth, so as to admit it to be entirely incorporated with the soil. If it could be done, the ground should be well manured, and a crop of potatoes raised, previous to commencing the nursery; when this cannot be easily accomplished, as it is not absolutely necessary that the soil should be highly manured, yet you should not make choice of a poor soil, but such as any substantial garden ground, or good mellow pasture land, the sward carefully trenched to the bottom.

A small nursery for private use may be made in any suitable part of the kitchen garden.

6.—*Soil and Situation.*

It must be evident from the affections and antipathies of plants, in respect to different kinds of earth, that a complete nursery should either naturally comprise, or by art be made to comprise soils of various qualities. The mould, in the chief part of it, should be light and pliable, with a large mixture of sand, a part of it should be a rich fine loam; there should be also a minor proportion of clayey land, and if possible, some peat earth within the boundaries.

A cold damp bottom, or a soil which lodges any stagnant water, will be very unsuitable, except it be well drained.

The upper soil should be naturally good, or meliorated to the depth of two feet.

As to aspect, the nursery should be open to the east, south, and west, and sheltered on the remaining quarter, so that if a particular exposure is either wanted or to be denied, to any of these plants, it may be obtained by the interposition of screens. If there be a

slight declivity in the surface, so as not to interfere with the general tillage of the ground, particularly if the inclination be to the south or east, it will have some advantage over a level.

7.—*Fencing, preparing, and laying out the Ground.*

A fence round the whole nursery is necessary, of the best materials you can procure; a board fence, or hedge and ditch.

When the whole is trenched, as before directed, proceed to divide it by walks, into quarters, and other compartments. A principal walk should lead through the middle from eight to ten feet wide, having a broad border on each side; another walk should be carried all round, leaving an eight or ten feet border next the outward boundary, all the way; then divide the internal part by cross walks, so as to form the whole into four, six, or eight departments, called quarters.

One or more of the divisions must be allotted as a seminary, for the reception of all sorts of seeds, for the reception of seedling plants, to furnish the other parts. Divide this seminary into regular beds of three and an half to four feet wide, with eighteen inch alleys between each bed; in these beds, sow the seeds, &c. of all such trees, shrubs, and herbaceous plants, as are raised from seed, and which consist of the various sorts of smaller seeds, kernels, and stones of fruit, to raise stocks for grafting and budding; seeds of forest trees, ornamental shrubs, &c. and seeds of numerous herbaceous perennials, both of the fibrous and bulbous-root tribes. The sowing season is both spring and autumn, according to the nature of the different sorts. When the young tree and shrub plants raised herein are one or two years old, they are to be planted out in nursery rows, into the other principal divisions; but many kinds of herbaceous plants requre to be pricked out from the seed-beds, when but from two to three or four months old; bulbous seedlings will not be fit for planting out in less than two or three years.

Another part should be allotted for stools of various kinds of trees and shrubs, to propagate them by layers, by which numbers of plants of different kinds are propagated. These stools are strong plants of trees and shrubs, planted in rows three or four feet distant every way, and such of them as naturally rise with tall stems, after being planted one year, are to be headed down near the ground, to force out many lower shoots, conveniently situated for laying.

The cuttings, suckers, slips, off-sets, &c. of hardy trees, shrubs, and plants, may be planted in any convenient part, in shady borders, &c. and for the more tender kinds, some warm sheltered situation should be allotted.

The other principal divisions of the nursery ground, are for the reception of the various seedling plants, from the forementioned seminary, as well as for those which are raised from cuttings, suckers, layers, &c. there to be planted in rows, from one to two or three feet asunder, according to the manner of their growth; allow the tree and shrub kinds three times the distance of herbaceous perennials. Some are to be planted for stocks to graft and bud fruit trees and other choice plants upon. Most forest and other hardy tree kinds, also almost all the sorts of shrubs are trained entirely on their own roots, without budding or grafting. Here they must remain to have several years growth, according as they may require, for the several purposes they are designed for.

In a complete nursery, it will be proper to allot a dry, warm, sheltered situation in the full sun, on which to make hot-beds of dung or tan, for raising and forwarding many sorts of tender and curious exotics, by seed, cuttings, suckers, slips, &c. and be careful to be furnished with every requisite necessary therefor.

8.—*General mode of arranging the Plants.*

In the distribution of the various sorts of the plants in the nursery, let each sort be separate; the fruit trees should generally occupy spaces by themselves; the forest trees should be stationed together, all the

shrub kind should be ranged in separate compartments; a place should also be appropriated for herbaceous perennials; a warm situation should be assigned for the tender plants, which should be defended with yew, cedar, or some other hedge. In this place those plants may be kept in pots, which require to be preserved from severe frosts, and yet not so tender as to demand the protection of the green-house. The arrangement of all these should be in rows.

Fruit tree stocks, for grafting and budding upon, should be placed in rows three feet distant, and about one foot apart in the row, if for dwarfs; standards should have their rows four feet apart, and eighteen inches or two feet in the rows. Forest trees should be placed in rows, four feet asunder row from row, and two feet in the rows; the shrubs should likewise have the rows about three feet asunder, and eighteen inches distance in the rows, varying the distance according to the time they are to stand in the nursery. Herbaceous plants should be disposed in rows, four feet distance apart, and eighteen inches in the rows.

9.—*Planting out the Seedlings.*

There are various methods of setting out the nursery plants, after being raised either by seed, layers, suckers, or cuttings; this is performed by pricking out some, especially small seedlings, by the dibble, others are put in by the spade, either by slitting in, trenching, or hoeing, and some are drilled in by a hoe.

10.—*Planting Herbaceous Fibrous-rooted Plants.*

These are for the most part planted out with a dibble, except when the roots are large and spreading, or such as are removed with balls of earth, then they are more commonly planted with a trowel, or small spade.

11.—*Planting Bulbous Roots.*

Bulbous and tuberous-rooted plants, if set out in the best manner, should be done as follows:—trim off the top of the bed six inches deep, then line out the place for the plants to be set in, the rows six inches apart,

cross the first lining at right angles, six inches distance, and in every corner of the bed put in about an inch of clean sand, on this set the roots of hyacinths, of tulips; crocusses do not require to be planted at such a distance. Crown imperials require two feet each way; previous to planting them, lay a shovel full of fresh cow-dung in the place, then put in the root, cover it with another shovel full of the fresh dung, and over this the earth so that the root may be entirely covered with the dung, and its crown be six inches under the surface of the ground.

12.—*General Culture of the Plants of this Department.*

Those designed as stocks for fruit trees, should have their stems perfectly cleared from lateral shoots, so as to form a clear straight stem, but never shorten the leading shoot, unless it is decayed, or become very crooked, in which case, if it is cut down low in spring, it will shoot out again, then train the main shoot for a stem, with its top entire, until grafted or budded.

After they are budded or grafted, such as are designed for full standards, must be kept to a single clean stem, five or six feet for full standards, by cutting off all lateral shoots, which sprout below; half standards trained with a three or four feet stem, and dwarf standards headed down to one foot from the ground; the graft or bud of these must of course be set in low.

Forest trees should be formed with straight single stems, by trimming off the lateral branches, which will promote the leading top shoot to grow straighter and higher, than it otherwise would; but should it fork, before it has attained a proper height, trim off the weakest, and leave the straightest and strongest shoot, to form the stem of the tree.

When the fruit trees are grafted or budded, place sticks to the different species labelled 1, 2, 3, &c. and set them down in the nursery book; paying the same attention to the forest trees, shrubs, and perennials.

Where the plants are in rows, wide enough for the hoe to pass between, which would be the best method, even for the seedlings, hoe the ground well, and frequently, during spring, summer, and autumn, both for the culture of the plants, and to destroy the weeds, also hand weed between the rows. Every fall or spring, the ground between the rows should be manured with old rotten dung, and dug up, turning in the manure and weeds to the bottom.

Southern States.

This month, prune the deciduous shrubs and trees, trimming off all straggling roots of both.

Transplanting of young forest and ornamental trees, in the nursery may be now performed, particularly deciduous trees, &c. of the hardy kinds, if the weather is like to be mild, and hard frosts are not expected to follow.

Prune all hardy, deciduous shrubs, and in open settled weather, transplant them both in the nursery, and in the shrubbery plantations, provided the soil be dry, otherwise do not plant therein before February.

Plantations of fruit tree stocks, for grafting and budding upon, may be made at any time this month. Many of those raised from seed, last spring, may be now planted in nursery rows, as before directed, and when they have stood there one or two years, will be fit for budding and grafting. See Nursery, October, for the method of planting; that of March, for grafting, June, July and August, for budding. This being a suitable time to propagate deciduous trees in the southern states, as well as shrubs, by layers, the reader is referred for directions, to Nursery in February, also slips and cuttings.

Prepare some ground, where it is not wet, for the reception of stones and kernels, of hardy fruit, to raise a supply of stocks, for budding and grafting upon; cover the stones an inch and an half deep, and the kernels half an inch, with light earth; keep them clean from weeds, water them in dry weather. Some of them may be transplanted into the nursery rows, in November.

Sow the various kinds of hawthorn, holly, red cedar, juniper, yew, mazereon, sweetbay, English and Portugal laurel berries, horn bean, ash, spindle-tree, bladder nut, and all the other kinds of tree, and shrub seeds, which require a year's care previous to sowing.

For instructions see February and March.

FOR FEBRUARY.

1.—*General Observations.*

AS the climate is frequently so variable in the United States, that no specific time can be assigned, for the early work to be done in the garden, &c. the general rule heretofore given, of working the ground as early as possible, must always be recollected, as many of the hardy plants will succeed better, by taking the first advantage of getting them in the ground; this care will also enable the gardener, the more satisfactorily, to meet the great pressure of planting, sowing, grafting, &c. which must be attended to in March.

But when the ground remains entirely frozen, until the latter end of this month, you have no alternative, but to defer the business till the period arrives, when it may be dug.

2.—*Propagating by Cuttings.*

Plant cuttings of gooseberries, currants, honeysuckles, and many other hardy flowering shrubs and trees; as many different sorts may be propagated by this method. The cuttings must be shoots of the former year's growth, about twelve inches in length. Plant them in rows, two feet asunder, at eight inches in the row, place each cutting two thirds into the earth,

Most kinds which are planted now will be rooted by October.

3.—*Propagating by Layers.*

The latter end of this month, layers, of most kinds of trees may be made, but the best time for this work, except for evergreens, is October and November, which see.

4.—*Transplanting Layers.*

All the layers of such hardy shrubs and trees as were laid down last year, and remain on their stools, if they have taken root, may now be cut off, and transplanted. Trim them and transplant them in rows, from two to three feet distant, and the plants about fifteen to eighteen inches in the rows.

5.—*Propagating by Suckers.*

Many kinds of trees and shrubby plants, furnish abundance of suckers from the roots, for propagation, particularly lilacks, syringas, robinias, roses, box, ivy, and many other hardy kinds. The suckers may now be separated from the parent stocks, and planted out.

6.—*Pruning, &c.*

Towards the latter end of this month, dig the ground, between the nursery rows, of the trees and shrubs, and prune them carefully; but should the ground be frozen, pruning only can be performed.

7.—*Sowing Stones, to raise Stocks for Grafting.*

As early as possible this month, sow the stones of plums, peaches, nectarines, apricots, and cherries, in drills, and cover them from one inch to two inches deep.

8.—*Sowing Haws for Hedges.*

Having collected a sufficiency of fruit, of the various kinds of hawthorn, which you wish to propagate, the autumn twelve months previous to the time when you are to begin preparing the ground for them, which

process must be performed in the fall, in order to have the ground in a good state of culture to receive them, afterwards proceed, as directed.

After collecting these seeds, in autumn, keep each kind separate, mix each with equal quantities of light, sandy earth, and lay them, in that state, on the surface of a dry spot of ground, in an enclosure, where they will not be disturbed by hogs or any thing else, form this mixture into a narrow sloping ridge, tapering to the top, and cover it with light loose earth, two inches thick, all over; the April following, turn this ridge, mixing the whole together, and again form it in the same way, covering it in like manner as before, with two inches deep of light loose earth; repeat this again in the months of July and August, by which the seeds, in every part will be prepared for vegetation. A trench must be cut round this ridge, to prevent any water from lodging about the seeds, especially in the second winter, when the stones would be parting with their adhesive quality, and begin to open, for until this is effected, the kernels cannot vegetate, and although this is the case, they ought not to be buried in the earth, as is practised by many, for they would not then have a proper preparation for opening the stones, for when buried in the earth below the principle of vegetation, they will either remain inactive for many years, or else decay.

Although there is not the least danger to be apprehended from the seeds being injured by frost, by their being exposed to it in the ridges, yet it will not be amiss to strew a covering of long litter over them, on the approach of winter, which will keep them in a better state for sowing when the season arrives.

When the haws are prepared as above, make ready a piece of rich, good ground, neither upon an elevated situation, nor too low; in the former, the summer drought would be injurious, and in the latter, they would be subject to mildew. They must be sown as early in the spring as possible, when you can make the ground work freely, and pulverise well; for the haws begin to throw out roots at a very early period, and if

not sown at this time, or before, a great number of the roots will be broken off in the act of sowing, and thereby totally lost.

The seeds must not be covered with wet, or heavy earth, nor too deep, therefore, if the earth of the bed is not light, or dry enough, for this purpose, you must carry as much, from some compost heap, as will cover the seeds.

On examining your haws, if the earth, in which they are mixed, is any way clogged with too much moisture, so that the parts and seeds will not separate freely, in the act of sowing, mix therewith a quantity of wood-ashes, to accomplish that purpose.

Having every thing in readiness, and the ground well dug and raked, lay it out into four feet beds, with an alley of fourteen inches between them; sow your haws very thick, for many of them will prove faulty, then, with a spade or shovel, beat some earth fine, and cover the seeds with it, not more than three quarters of an inch deep; after which rake the tops of the beds very lightly, taking care not to disturb the seeds, but to give a neat appearance to the work, by taking off all the lumps.

When the plants shoot above ground, and the season is dry, give them frequent gentle waterings, till they all appear above ground. After which be particularly careful to keep them clear of weeds, until they are fit to be planted out in hedge rows, and even after that, until they have attained sufficient size not to be injured by them.

Many of these plants will be fit to set on the banks of ditches, the autumn or spring following; but if they are intended for forming upright hedges, the strongest of the year old plants, should, in the month of March, or very early in April, be drawn out of the seed-beds, and after shortening their top roots to five or six inches, plant them into nursery rows, about two feet asunder, the plants about six inches distant in these rows, and after two or three years they will be fit for the purpose.

The various kinds of hawthorn, which, on account their spines, would answer for live hedges, are the following, all being indigenous in the United States, except the first, which is the kind principally used in Europe for that purpose.

1. *Cratægus Oxyacantha,* Common European Hawthorn, or white thorn.
2. *Cratægus Coccinea,* Great American Hawthorn, native of Virginia.
3. *Cratægus Crus galli,* Cocks-spur Hawthorn.
4. *Cratægus Tomentosa,* Woolly leaved Hawthorn.
5. *Cratægus Cordata,* Maple leaved Hawthorn.
6. *Cratægus Pyrifolia,* Pear leaved Hawthorn.
7. *Cratægus Eliptica,* Oval leaved Hawthorn.
8. *Cratægus Glandulosa,* Glandulous Hawthorn.
9. *Cratægus Flava,* Yellow fruited Hawthorn.
10. *Cratægus Parviflora,* Gooseberry leaved Hawthorn. See Nursery, March.

9.—*Sowing Seeds of Apples, Pears and Quinces.*

If the seeds have been taken out of the pomace of cider apples, carefully dried, and put up in tight vessels, they may now be sown in the nursery, as soon as the ground can be put in a good situation for the purpose. It would answer equally well to procure the pomace of apples and sow it in October in the place intended to raise the seedlings, this last mentioned cannot be pursued for pears, unless it is where the quantity is sufficient to make perry, in which case the pomace of pears will answer to sow in the fall, as proposed for apples. Quince seeds can be saved, dried, and put into bottles, to be corked and preserved till spring. The spring sowings of these may be in drills, and covered about half an inch with finely pulverised earth.

Southern States.

The various business of the nursery recommended to be done in January, February and March, may be practised with success, in Georgia, South-Carolina and

several other parts of the southern states. This also being the suitable season with them for grafting, which is performed in the middle states in March, the processes there described may be referred to.

FOR MARCH.

1.—*Time of Grafting, &c.*

THE most eligible time for grafting, in the United States, is when the buds of the stocks are so swelled, as nearly to begin to expand into leaf; this time should be particularly attended to, as there is now the greatest probability of success. The time for performing this, may be generally estimated from the middle of March, to the first week in April, according as vegetation is promoted or retarded in the spring, which is at some seasons near three weeks earlier than at others. The cions or grafts should be collected three weeks or a month, before they are to be set in the stocks; the suitable time may be determined, by the buds showing the least disposition to swell, as if then taken judiciously, they will succeed better.

Begin first to prepare for cherries and plums, and afterwards the pears and apples, as these two last may be deferred ten or twelve days later than the former.

Dwarf apple trees should generally be grafted or budded upon codlin apple stocks, raised either from suckers, or by cuttings or layers; or, if required to have them still smaller, use the stocks of the Dutch Paradise apple, and Siberian crab. For the general

supply of stocks for common standards, they are raised principally from the seeds of the pomace.

Pears are best to be grafted or budded upon stocks, raised from pear kernels.

Cherries on stocks of the common black or red cherry.

Plums, by raising stocks of the most vigorous and growing kinds.

The apricot proves the most durable on stocks of the plum kind.

Peaches and nectarines, several sorts, are occasionally used, such as peach, plum, almond, and apricot. With us the growth of the peach is so rapid as to overgrow the stock in a few years, when budded on any kind of plum as yet known. It would be indeed an acquisition, if a plum stock could be discovered which would answer so valuable a purpose.

In selecting the grafts, first, choose such of the last year, as the older wood seldom succeeds; second, always take them from healthy trees; third, those grafts are to be preferred, which are taken from the horizontal branches, to those from the perpendicular shoots.

After collecting the grafts, set them thinly in the earth, in a cold shady situation, to prevent their vegetating, place each separate, and clearly distinguished by labels, with their cut ends down. Always preferring stocks raised in the nursery from seeds, for grafting on, to those produced from layers, cuttings, or suckers.

There are various methods of grafting in practice; first, whip or tongue grafting; second, cleft grafting; third, crown grafting; fourth, side grafting; fifth, root grafting; sixth, grafting by approach, or inarching. The first method is by far the best for small stocks, and therefore generally used. There are some sorts of trees, which cannot be managed in any other way, than by the sixth method, as the fig, walnut, and mulberry: except in such instances, where it is the only resource, it is not resorted to.

2.—*Cover or Protection for the Cions.*

The usual cover for protecting the cions, after grafting them in the stocks, is clay, well tempered, and mixed with horse-dung, the graft and stock to be neatly covered over with a small ball of this preparation, just at the insertion of the graft. Or as a substitute for the above, you may make use of equal parts of tallow, bees-wax, and rosin, spread upon strips of linen or paper, six inches long, and about two inches wide; keep these strips ready for use, which, when a little softened by heat, will answer to wrap one of them around each stock, so as completely to cover the fissure at the sides and in the end; this operation is more convenient and neater than the former mode, requiring but a few minutes preparation, by warming the vessel, in which it should always be preserved in readiness for use; it is much less disagreeable than clay in the cold weather, which sometimes prevails in the season for grafting, and if properly performed, is attended with equal success. As the graft enlarges, the bandage will gradually distend, till it decays and falls off; in the mean time, serving to protect the more delicate kinds of trees against the decomposition or cracking of the clay, by the heat of the sun, or severity of the frost.

3.—*Instruments for Grafting.*

The proper instruments for this purpose are, first, a neat saw set in a frame with a suitable handle, the saw always to be kept in the best order, and to have teeth as small as a tenant saw, the frame made somewhat like that used by watch-makers; this should be large enough to be used occasionally, for cutting off the heads of the large stocks for crown grafting; second, a grafting chissel and small mallet, for cleaving large stocks, for the reception of cions in cleft grafting; third, with a neat and very sharp pruning knife, for cutting and shaping the grafts, and for sloping and forming the stocks for their reception; fourth, with a quantity of new bass strings, or shreds of Rus-

sia mats, or if such cannot be easily procured, some soft woollen yarn, to tie the parts close, and secure the grafts, after which they may be covered over carefully with the clay, &c. as directed in No. 2; fifth, a drawing knife may be added to the above.

The stocks to be grafted, if intended for dwarf trees, for espaliers or walls, must be headed down to within two or three inches of the ground; but if for standards, and the stocks are vigorous and strong, they may be grafted at five or six feet high, especially apples and pears, or in fact, at any distance from the ground, as the graft may be trained to a proper height, but then a year of their growth is lost thereby; although it is the best method for stunted or ill formed stocks, as the grafts of these may be trained to suit.

4.—*Whip or Tongue Grafting. No.* 1.

This, as the most expeditious method, is generally practised by nurserymen. The stock upon which it is performed, must be slender, from the size of a goose-quill to any diameter which coincides with the thickness of the graft.

Having headed the stock at some clear smooth part, slope it on one side with a knife, in a very acute angle; make a slit on the lower side of the slope, to receive the wedge or tongue of the graft. Secondly, having the prepared cions cut into lengths of four or five eyes, take one which matches the stock, as near as well may be in size, and slope the bottom of it, so as to fit the stock, that the rinds of both may correspond exactly, cut also at the bottom of the graft, a slit like that in the slope of the stock, to receive the sharp end of the stock; then unite the graft to the stock, as evenly and completely as possible, let the graft be carefully held in its due position, while a bandage is applied; carry the string of bass in a neat manner several times round the stock and graft; lastly, cover the joint with a suitable composition: if that of clay, above described, be used, coat from half an inch below the bottom of the graft, to an inch above the top of the stock, and to the thickness of

half an inch all round; finish it in an oblong globular form, taking care to work it so close, that no wind, wet, or sun-shine may penetrate.

5.—Cleft Grafting. No. 2.

This method is resorted to, when the stock is too large to admit of that already described. The size of the stock, however, must not exceed that of the graft, beyond a determinate limit; for if the rind of the stock be too thick, the inner barks of the stock and cion will be prevented from uniting. The stock is usually from one inch to three inches diameter. Begin the operation by smoothing with a knife the top of the stock, where it has been headed; then marking about one-fourth of an inch diameter of this top, to be left horizontal, cut from the mark to the opposite side of the stock, in a sloping direction; next hold the edge of a strong knife to the top, in a right angle with the slope, and with a small mallet, make a cleft deep enough to receive the cion, and keep it open with a wedge, to prepare the cion for insertion—first, cut the bottom of it with a double slope like a wedge; secondly, slope the bottom of the wedge, so as to leave a broad position on one side of the graft with the rind entire, this side is to stand outwards; insert the cion into the cleft of the stock, on that side which is not sloped, so as to make the rind join with that of the other exactly; for without their perfect union, the graft will not succeed; on removing the wedge, bind them together with bass, to prevent the cleft of the stock from opening; after which protect the joint from the air, by a coat of composition, beginning from the bottom as far as the cleft extends, and carrying it up the graft a competent height, the cion may be six or eight inches long. Two eyes at least should be left uncovered for shooting.

Two grafts may be inserted into one stock, in which case, the stock must be large enough to admit of two parallel clefts.

6.—*Crown Grafting, sometimes called Shoulder Grafting, and Rind Grafting. No. 3.*

In this mode, two or more grafts are inserted into the horizontal crown of the stock. It is chiefly practised on large trees, of which the wood is too stubborn to be cleft.

Either the head of the stock, or one of the large branches, is sawed off horizontally, and pared smooth, the rind at the top of the stock, is then raised to admit the cions between the wood and bark, and kept raised by a fine thin wedge. Each cion is to be pared away on each side of the lower part, for about two inches, so as to make that side flat, and leave a shoulder, forming a right angle with it. Introduce each cion between the wood and the bark of the stock, so that the shoulder of the cion may be in contact with, and rest upon the crown of the stock.

When all the cions are inserted, and the wedges withdrawn, bind them in with bass, and cover with a composition of clay, the whole crown of the stock, to the height of at least an inch, rounding it off, so as to prevent any wet from penetrating or lodging on it.

As in this method the cions are merely placed between the rind of the stock and the wood, they are liable to be blown out by violent winds, even after they have made large shoots, sometimes after the second or third year; to prevent this, they should be supported by large stakes, till they have nearly grown over the crown of the stock.

The operation will be the more successful, if not performed till the sap of the stock has begun to rise, which renders the bark more easily separable from the wood.

7.—*Side Grafting. No. 4.*

This is done by inserting grafts into the sides of the branches, without heading them down, and may be practised upon grown trees, in order to fill up any vacancy, or for variety, to have several sorts of fruit on the same tree.

Fix upon such parts of the branches where wood is wanting, to furnish the head or any part of the tree: there slope off the bark, and a little of the wood, and cut the lower end of the graft to fit the part as near as possible, then fix it in the branch, first tonguing both, as in whip grafting; tie them with bass, and clay them over.

8.—*Root Grafting. No. 5.*

This is done by whip grafting cions upon pieces of the root, about half an inch thick, turned up, either as the roots remain, or separated and immediately replanted.

Grafting is frequently done with good success, without the assistance of any prepared composition. This method is to head down your stock, near the surface of the ground, and graft them as low as you possibly can, bind them neatly, as in other cases, and draw the earth over the crowns of the stocks, so as to let one or two of the buds appear; examine them frequently, and if the earth sinks so as to expose the crowns of the stocks, cover them up again. When the cions have sufficiently taken, clear off the earth, unbind the bandages, and then replace the earth as before. Trees, grafted in this way, may be trained up for dwarfs, standards, half standards, espaliers, or wall trees, at pleasure.

It sometimes happens that persons are under the necessity, in spring, of removing some stocks, when in the way of other business; in which case, they are frequently taken into the house, and grafted in any method most convenient, then planted immediately. Some nursery-men take them up in the fall and remove them into an out-house, placed in sand, grafting them at their leisure, and plant them in the spring; these methods, by gardeners, are termed fire-side grafting; and although they may sometimes prove successful, nothing can be a sufficient plea for the last, and necessity only can be admitted for the former; the roots of both being disturbed from their beds, it must unavoidably require more time, before they can receive

sufficient nourishment, in the spring, to supply the requisite vegetative principle.

9.—*Inarching or Grafting by Approach. No.* 6.

This has been also termed *Ablactation.* In this method of grafting, the cion is not separated from the parent-tree, until it is firmly united with the stock, consequently they must stand contiguous. It is the common practice also to retain the head of the stock, until the graft is well united.

If the stock and graft do not grow in the full ground, the nicest disposition of them as to contiguity, may be made. If the branches of both do not grow at equal heights, a slight stage may be erected, to elevate the pot or box which holds the lower. The time of grafting by approach is April or May.

To perform the operation:—Take the branch intended to be inarched, and bring it in contact with the stock. Mark the parts, where they are similar in size, and can be easily bent into union, so as to form a pointed arch. In that part of the arch which is to rest against the stock, pare away the bark, and part of the wood, to about three inches in length, and on the side of the stock, which is to receive the graft, do the same. Then at the top of the unbarked part of the stock, introduce the knife and cut a slit downwards behind it, which at once forms a slit, and a tongue, to go into a corresponding slit, to be made upwards in the graft. After this preparation, let the tongues be mutually inserted, joining the unbarked parts, exactly rind to rind. Bind them together with bass, and protect the joint from the weather, by a coat of close composition. Finish by fastening the branch to a stout stake, driven firmly into the ground, to prevent the wind from disturbing the joint.

The use of this method for evergreens has been noticed.

10.—*Grafting Peaches, Nectarines, Apricots, &c.*

Peaches, nectarines, and apricots, will succeed by grafting, but propagating them by inoculation is far preferable.

Grafting may also be performed, on most kinds of forest and ornamental trees, such as elm, ash, oak, holly, althea frutex, &c. &c. whose cions are not soft wooded, nor too full of pith.

11.—*Management of Fruit Trees, Grafted and Budded, last year.*

Those fruit trees which were grafted last year should now have their shoots shortened, that they may produce lateral branches, for regular heads; if they are intended for espaliers or wall trees. For directions, see Fruit Garden, page 152; if for standards the stems must be trained to a proper height, and then topped so as to produce handsome well furnished heads, and observe now to have the branches to spread somewhat from the middle, that when the tree is planted out, for a standard, there may be no necessity of pruning out the middle part of it, in order to admit the sun and air, to enrich and ripen the fruit.

The stocks which were budded last summer, and in which the buds still remain dormant, should be now cut off sloping, just above the bud, by which means the whole nourishment will go to the inoculation, and soon promote the advancement of their first shoots.

The stumps, left last season, should now be cut off, clean to the fresh wood, in a sloping manner. This must be done early in the month, in order that the wounds may heal and be covered over with bark, which will be effected in one season, if no unsound wood be left.

12.—*Transplanting Stocks to Bud and Graft upon.*

Make new plantations, from the nursery seedlings, of stocks, to bud and graft the different kinds of fruit upon. Many of those raised from seeds, &c. last year will now be ready for this purpose.

Let these be planted out, as soon in the month as the weather will permit, in rows, three or four feet asunder and at least twelve inches distance from one another, in a row. They should be planted by line.

13.—*Sowing Stones to raise Stocks for Grafting.*

Where plum, peach, apricot, and cherry stones, &c. were neglected to be put in the ground, or could not, in consequence of the weather, be sown last month, let it be done as early in this as possible agreeably to the rules laid down in February, which see.

14.—*Sowing Kernels of Apples, Pears, and Quinces, for Stocks.*

If it was impracticable to sow these last month, let it be done as early in this as possible, sowing them tolerably thick in beds, and covering them with light dry earth, about half an inch deep, though they would have succeeded better, if they had been sown in October or November, and with less trouble.

15.—*Sowing and Planting out Haws.*

Full and clear directions have been given for the preparation and sowing the thorn quick seeds in February, page 195, which see.

Any time this month, particularly after the middle and towards the latter end, you may take up your one or two year old seedling quicks, out of the beds where they were raised, and plant them in nursery rows, about two feet asunder, and the plants to be about six inches distant in these rows, when they have stood there two or three years, they will be in a suitable condition for forming hedges. They always succeed best when planted out young.

During the continuance of these plants in the nursery, they must be kept free from weeds, and in the spring and autumn, it will be necessary to dig between them, to loosen the earth, which will refresh and strengthen them.

16.—*Mespilus Pyracantha.*

The *Mespilus Pyracantha*, or evergreen thorn.

17.—*Black Thorn, or Sloe.*

18.—*Plum leaved Viburnum, or Black Haw.*

19.—*Horn Bean and Buck.*

20.—*Yew and Privet.*

The seeds of Nos. 16, 17, 18, 19 and 20, are all to be treated as haws, see page 195.

21.—*Live Hedges.*

Live hedges are objects of great importance both to the farmer and nursery-man. Although they are a long time before they arrive at maturity, yet their duration will compensate for the trouble requisite in the attention to them, and if planted at the time a fence is made, the hedge, if properly treated, will, before the decay of the fence, be a durable protection. Either of the *Cratæguses* mentioned in page 198, will make a most exccellent defence for your field. Where the *Cratægus Oxyacantha*, or common hawthorn of Europe, can be easily procured, it is generally most esteemed; however as at present it is difficult to obtain seeds of either kinds, the *Mespilus Pyracantha* may be propagated soonest by suckers and layers, as well as seeds. The description of a live hedge of the Mespilus Pyracantha mentioned above, sent to the President and members of the Agricultural Society of Philadelphia, by Thomas Maine, is nearly as follows.

22.—*Pyracantha Hedge, &c.*

The Pyracantha is an indeciduous shrub, thickly set with small oval leaves, and abundantly armed with sharp prickles. After it is three years old, it annually produces its umbels of white flowers, in the month of June; by the beginning of September, it is embellished with numerous large clusters of scarlet coloured berries, which continue on the plant through a great part of the winter. At the commencement of frosty weather, the green hue of its foliage is changed into a deep purple, and the whole plant remains so, until the return of spring, when its leaves again resume a degree of their verdure, but of a tarnished and dingy appearance, till the new shoots restore its former freshness and beauty. The mode of growth, and appear-

ance of the pyracantha, is not easy to be described; its lowermost limbs and sprays recline upon the surface of the earth, and in a few years cover a considerable space around the original stem, which in a generous soil will sometimes acquire the size of a person's ancle; but it carries this thickness to no great height, being branched from the bottom, and irregularly diffused into numbers of rambling limbs, mixed and naturally interwoven with many other flexible sprays and upright shoots rising in an entangled mass to the height of ten or twelve feet.

The pyracantha, like most other plants, that nature has, in part, consigned to human care, requires to be cultivated in its infancy. Stirring the soil, and cleaning the surface around from weeds, tends greatly to accelerate its progress to strength and maturity. Whenever any of its procumbent limbs, or sprigs, happen to be covered with mould in the genial season, they immediately take root; so that one original plant may in a few years be surrounded by a numerous progeny, attached to each other by intermediate ties, and connected with the common parent, at different heights from the surface. The roots of the Pyracantha, however, do not run far, or send up suckers a distance, so that its propensity to take root, by layers, is no way detrimental to its being closely confined within a desirable and correct boundary.

No plant appears to agree better with pruning than the Pyracantha: trimming its smaller sprays with the hedge shears, and lopping off its larger limbs, with the bill, in proper seasons, and at due intervals, is productive of a numerous train of new vigorous shoots, and contributes to multiply their entangled ramifications.

This early and extraordinary fecundity is a circumstance of much importance to the hedges, as it can not only be propagated by seed, but every plant in a hedge may, by laying it in the third or fourth year of its age, be made to produce ten, twenty, or more plants, with good roots, and consequently afford materials for planting a new hedge, ten or twenty times the length

of the original; this, with its exuberant production of seed, renders its increase very rapid. In the conclusion of the account, it appears that it will answer on a thin meagre clayey soil, even in a bleak situation.

Agreeably to the account given us, by the writer of the foregoing, the pyracantha was planted as a ground hedge, each plant about three feet apart, but the hedge would have sooner arrived to maturity, if there had been but eighteen inches allowed between plant and plant. The ditch ought never to be made, until the plants have stood four or five years in the place intended for them; this however cannot be done without the assistance of temporary fences.

For internal ornamental hedges, privet, yews, laurel, box, cedar, and juniper, are frequently used.

23.—*Ground Hedge.*

A ground hedge may be made of any of the hawthorn, mentioned in page 198. The ground should be prepared the season before planting, manured and well tended, by planting thereon two or three rows of potatoes, and when they are taken off, plough the ground deep, and in this month, plant and set the quicks of two years' growth, raised in the nursery; set them from eight to ten inches apart, in the row, by line; they will require protection, &c.

24.—*Hedge and Ditch.*

The following method of making a quick thorn hedge and ditch, is the one proposed by William Neill, of Pennsylvania, in a letter to the president of the Agricultural Society, Pennsylvania.

First lay down stone, convenient to where you intend your fence, say one cart load of middle sized stone to fifteen feet; then run the line where you design the front of the bank, and close to that line lay one row of stone compactly together; then move the line twelve inches out, towards where you intend to dig the ditch, the last twelve inches to remain in front of the bank, to keep the frost from working under, till the roots grow through, to bind the earth together,

which they will do in three years; with a spade cut along your line, the depth of a good sod, keeping the face of your spade always in towards your ditch; then lift your line, and lay it four feet apart from the last, and cut with the spade, as before, the sod off the four feet between the last two lines, and throw it back behind your row of stones; let the mother earth on your sod be mashed fine with the spade, and drawn in with the hand, carefully to and over the stones, to the depth of two or three inches; then lay down your thorns in a horizontal direction, the top rather inclining upwards, at six inches apart, advancing two or three inches through the stone, carefully drawing the nicest mother earth with the hand over the roots; the next row is of a middle sized stone, (but be as careful as possible not to pinch your plants between flat broad stones,) and go on with rows of stones, and layers of earth, until your bank is three feet six inches high, your ditch three feet deep, carried down so as to be two feet at bottom. In raising the wall in front of your bank, carry it up almost plumb; for as your earth settles down, your wall will lean back, and become shelving.

Laying one row of stone under the plants, and two or more above, keeps them close about the neck, and hinders the earth from mouldering away, it likewise keeps weeds from growing so close up to the plants, as they otherwise would do; then by giving it a good high top of earth, and running one broad rail along the top, it will turn cattle, till your thorns get up, so as to make a strong fence, which they will do in four or five years. With all kinds of thorn fence, calculate so as to have them round those fields, you intend to have in with grain or grass, for two or three years, or the longer the better. By turning in your cattle, in the fall, they will browze on them, especially calves and sheep: but they will do little or no harm, as you will of course clip them, in the fall or spring. Give them dry ground, and moderate light stone, say from ten to twenty pounds weight each, and they are more secure. In laying out the fields, they should be so

planted, that as little water as possible should run into the ditches, except what falls from above; and by leaving one foot escarpment, by the time that foot wastes off, so as to bring it into the edge of the stones, it will be of such a moderate slope, as to moulder no more, unless carried off by water from the bottom. It will likewise get matted over with grass, and in a very few years the thorn roots will bind all together. In Europe the best and earliest pasture is always on those banks and ditches, so that it is never considered as waste ground. It is probable the weight and form of the bank hinders the frost from penetrating or getting into the ground in that part, as much as it otherwise would. Trim them in the fall and spring. It is generally agreed, no other plant ought to be introduced in those hedges.

25.—Trimming Thorn Hedges.

Lord Kaims says the following method of training up a hedge, is the best:—To allow the thorns to grow without applying a knife to their tops, till their stems are five or six inches in circumference. In good soil, with careful weeding, they will be of that bulk in ten or twelve years and be fifteen feet high or upwards. Those next the ground must be pruned within two feet of the stem; those above must be made shorter and shorter, in proportion to their distance from the ground, and at five feet high, they must be cut close to the stem, leaving all above full freedom of growth. By this dressing, the hedge takes on the appearance of a very steep roof, and it ought to be kept in that form by pruning. This form gives free access to rain, sun and air; every twig has it share, and the whole is preserved in vigour. When the stems have arrived at their proper bulk, cut them off at five feet from the ground, where the lateral branches end. A hedge trained up in this manner, is impenetrable even by a bull, as the stems stand firm. Good thorns are more essential in this manner of training a hedge, than in any others; they ought to be of an

equal size, and equally vigorous, that they may not overtop one another.

26.—*Holly Hedges.*

There is no plant which makes a more beautiful, close, and durable hedge, than the holly; it can be trimmed with the shears, clipped and dressed to any form. As the seeds do not vegetate till the second spring after their being ripe, they must be treated as directed for haws, page 195.

They should remain two years in the seed-bed, and then planted on the banks of ditches, or they may be planted in the nursery in rows, to remain a year or two longer, if intended for ground hedges. The latter end of April is the best season to plant them; they are easily cultivated by seed, though their growth is not rapid; but they seldom succeed when taken out of the woods. They also form a most beautiful tree for ornament, and their stems will sometimes grow to twelve inches diameter, and thirty or even forty feet high.

27.—*Crab and Apple Hedges.*

28.—*Honey Locust, and Elm Hedges.*

29.—*Lombardy Poplar Hedges.*

Hedges are sometimes made of the plants No. 27, 28, 23.

30.—*Plashing of Hedges.*

When gaps occur in several places, it is necessary to plash, or cut them all down near the ground; in order to perform this, you should have a pair of strong leather gloves, to tie up above the elbows, (which will also answer for you to trim raspberries and blackberries with;) besides this, a good sharp hedge bill, and a hand-saw.

If the hedge is to be entirely cut down, let it be done to within six or eight inches of the ground, and carry off the stocks so cut. Should there be any gaps or vacancies in the hedges, put some good plants therein, the hedge will soon grow out again, and become thick and strong.

If plashing is to be performed, select some of the main upright stems, take them at regular distances in the hedge, cut them off with the saw about three feet from the ground, sharpen them into stakes, and drive them down in the gaps of the hedge, in such manner as that the branches may be twisted or wattled round them; having previously trimmed the hedge, so as to leave only a sufficient number of the best shoots for wattling in and round the stakes, weave them, as much as well may be, to a horizontal position; afterwards with the hedge bill or garden shears, cut off all straggling branches at the sides, to within six inches of the hedge, and so continue until the work is finished.

As this kind of work is but little understood in America, it would be always advantageous to get an European hedger, to undertake this part of the business.

31.—*Rose and Sweet Briar Hedges.*

The wild rose and sweet briar are sometimes used for ornamental hedges; they may be either propagated by suckers, layers, or seeds; the last is the best way of cultivating them. The seed must be gathered in autumn, and managed, as directed for haws, which see, page 195.

32.—*The Plane, Tulip, and Nettle Trees.*

The plane tree, commonly called buttonwood, may be propagated either by cuttings, layers, or seed. The seed may be sown either in November, when ripe, or in March, breaking the balls, separating them carefully, mixing them with dry sand, and sowing them on the surface of the beds of the nursery; then cover them about a quarter of an inch deep with fine light earth. They will soon come above ground, and in a year or two, may be planted out in rows.

The *tulip tree*, commonly called poplar, is best propagated by seed, which may be sown at this season; but they would succeed better, if sown in November, and covered about half an inch with fine earth; for if

kept out of the ground till spring, a great number would not vegetate, till the year after they are sown.

The *Celtis Occidentalis*, or nettle tree, is to be treated as the tulip tree; their seed should be covered about one inch with light earth.

33.—*Maple.*

The *Acer Argenteum*, or silvery leaved maple, and *Acer Rubrum*, or scarlet maple, perfect their seeds in May, and will vegetate directly, and produce fine plants the first season.

The Canadian, Pennsylvanian, ash-leaved, mountain, and sugar maples, also the *Acer majus*, or sycamore, may be sown either in autumn or March, and will succeed well in either season. If sown in autumn, cover them about three-quarters of an inch deep; if in spring, half an inch will be sufficient. When they are about a foot high in the seed-beds, plant them out into the nursery in rows.

34.—*Catalpa, Sweet Gum, Papaw, and Persimmon.*

The *Catalpa* will grow freely from seed which is to be preserved in the beans till March, and then sown. If the ground is very rich, it will grow so luxuriantly, and be so tender, that the shoot will be destroyed, by the frost in the winter, down to the ground.

The maple leaved sweet gum grows freely from seed sown early in spring.

The *Annona triloba*, or common papaw, may be raised from the seeds, sown either in October, November, or March, and covered about one inch deep.

The Persimmon may be raised from seed sown in autumn or in March, but autumn is preferable.

35.—*Ash, Lime, and Sour Gum.*

The various kinds of ash are propagated by seeds, which are to be prepared as directed for haws, page 195. All the kinds take freely by grafting on one another, but natural stocks, when not intended for fruit, are in all cases preferable.

The American lime, or Linden tree, is easily propagated by sowing the seeds in March, October, or November; cover them rather more than half an inch with fine earth.

The *Nyssa integrifolia*, tupelo, or sour gum, may be propagated by seed, suckers, layers, or cuttings; sow them immediately when ripe, covering them an inch deep; some of them will come up the spring following, but others not till the next year.

36.—*Robinia, or Locust Tree.*

The *Robinia Pseudo Acacia*, or common locust tree, is superior to any kind of wood for trenails, in ship building, and fence posts, as well as useful for other purposes. Although there are some parts of the United States, where the branches are destroyed by worms, and the trees ruined, yet in other parts they succeed and grow rapidly in great perfection. Its culture is very easy, as it may be propagated in great abundance, by collecting the seeds in autumn, when ripe, preserving them dry till March, then sowing them in a bed of sandy loam, and covering them half an inch deep. When a year old, transplant them into the nursery, in rows four feet distant, and one foot plant from plant. They may be planted out after they have stood here two or three years.

The *Robinia Glutinosa* is a beautiful plant; it produces in May numerous bunches of beautiful flowers, and is a great ornament in pleasure grounds. It may be propagated by seeds, or by grafting upon the former.

The *Robinia Hispida*, or rose acacia, is a most beautiful shrub of humble growth, and may be propagated by suckers, which the natural stocks produce in great abundance, or by grafting it on either of the above.

37.—*The Cork Tree.*

The *Quercus Suber*, or cork tree, may be cultivated with good success in the southern states.

Having procured the acorns, plant them at once where they are intended to remain; particular care must be taken to keep them free from weeds during their infant state, and to protect them from the annoyance of cattle, till grown out of their reach.

38.—*Deciduous Cypress.*

The deciduous cypress is propagated by sowing the seeds in March, in beds of good mellow earth, covering them half an inch deep; they must be kept free from weeds, and when two years old transplant them into the nursery.

39.—*Firs and Pines.*

Firs and pines in general may be raised in the following manner.

Being provided with good seeds, as early in the spring as possible, prepare beds of three or four feet wide, of rich loamy ground, by no means subject to burn or parch with the summer heats; then sow the seeds on the surface of the ground, very thick, at least ten or twelve seeds to every square inch. It is intended, that, when they come up, they shall completely cover the surface, or they will be danger of being destroyed by the summer heat; it is also necessary to sow them early (their being no apprehension from frosts) that their roots may be established before the summer heats. After the seeds are sown, sift over them about a quarter of an inch of fine, rich, light mould, then place over the beds, suitable nets to keep off the birds, as they are extremely fond of them, and as the plants generally carry up the seeds on their tops, if not protected from these plunderers, very few would escape.

The beds must be kept free from weeds, and occasionally watered in dry weather. In the beginning of July, sift some fine light rich earth over the beds, so as just to come up to the foliage without covering it. When they have had two years growth in the seed-beds, early in April take them all up out of the bed with a spade, without injuring the roots or fibres, and

plant them in rows made for their reception, eighteen inches asunder, without trimming them, and eight inches plant from plant in the rows, just so deep that the earth may come up to their foliage, close it well about their roots and water them occasionally, until sufficiently taken with the earth, and growing freely, and if the watering is repeated frequently during the summer and early autumn, the better, always giving it about sun-set.

When these plants have stood two or three years in these rows, they may be planted out in April, where they are intended to remain, as this is the most successful period for this purpose, which, in the middle states, ought always to be done from the first to the middle of April.

40.—*White Cedar, and Arbor Vitæ.*

1. The *Cupressus Thyoides*, or white cedar. This tree grows naturally in swamps, where the soil is sandy, and fertilized by a sluggish run of water, generally leaving small hillocks of earth in different parts, and when the seeds fall on any of these they vegetate and grow rapidly, and sometimes attain the height of eighty or ninety feet in the body, which, in a rich swamp, is frequently six to eight feet diameter; their beautiful cone-shaped tops are so closely united together, as to prevent the rays of the sun from visiting the earth, and indeed almost to exclude the light of day.

This tree is propagated by sowing the seed, which is very thin and flat, (when taken out of the cones) in boxes of light earth, selected from some swampy place, as similar to that in which they grow as possible; after the seed is sown, let it be covered about three-sixteenths of an inch, with loose rich mould sifted over them. When they appear above ground, they should have frequent light sprinklings of water; when the weather is warm, and the sun powerful, remove the boxes into the shade; if there should be a moist place under a suitable shade of dwarf shrubs, so as in some measure to resemble their native soil, they would suc-

ceed well. As many of the seeds will not vegetate until the second year, they must be kept very clean from weeds. When two years old, transplant them into moist, light, swampy ground.

Fresh seeds may be obtained from the cedar swamps in the state of New-Jersey, any time previous to sowing them.

2. The *Thuya occidentalis*, or American arbor vitæ, thrives best in upland; it may be propagated by layers or cuttings, or by sowing the seed in boxes, and protecting it by shade, &c.

3. The *Thuya orientalis*, or Chinese arbor vitæ, may be propagated like the occidentalis.

All the above kinds will require some protection from frosts, for the two first years.

41.—*Larch, and Cedar of Lebanon.*

1. The *Larch* is the only deciduous plant of the whole family. The seeds of this may be sown in the spring, and treated as directed for pines in this month, No. 39. If the ground is good, and the season favourable, many of them may be planted into the nursery, the ensuing spring.

2. The *Pinus Cedrus*, or cedar of Lebanon, is too tender to bear the extreme frosts of the eastern states, but in warm exposures in the middle states, if protected in the winter for a few years, and gradually hardened thereto, may be planted out. In the southern states they will succeed. The cones of this tree should be kept one year before the seed be taken out. Abercrombie remarks, that the cones brought from the Levant retain the power of vegetation for several years. There is some difficulty in getting the seeds of these from their cones; the best method appears to be, by perforating them in the centre, and rending the whole cone asunder. Treat the seed as directed for pines—see No. 39, of this month.

42.—*Magnolia Grandiflora, or Great Evergreen Magnolia.*

This tree, when in the perfection it sometimes attains in the southern states, is one of the most magnificent trees in North America. In the state of Georgia, it rises to eighty or ninety feet high, and bears a profusion of white waxen flowers, which perfume the air around. This grand tree may be propagated, by procuring the seed when ripe, and as soon afterwards as possible, sow it in rich earth, in boxes, covering it over, about one inch, with a light sifted soil. After it vegetates, give frequent waterings, protecting it from the hot sun, and also from the vigorous frosts in winter, till it arrives at two or three years growth, when it may be gradually inured to the climate of the middle states. William Bartram, in his garden, on the western side of Schuylkill, Pennsylvania, succeeded in raising a beautiful tree of this species.

43.—*The Common Deciduous Magnolia.*

The seeds of the different kinds of Magnolia, should be sown in autumn, immediately after being ripe; for this purpose, you may have, previously prepared, some of the earth taken from the swamps where they grow, and preserving it free from frost, place it in boxes, sow the seed therein immediately, and set the box in the nursery till spring, when you may remove it to a moist shady place; give it occasional waterings during the heat of summer. Many of the seed will not vegetate until the second year. They may also be propagated by layers and suckers, as well as by grafts and buds. As this beautiful shrub abounds in low swampy grounds, in the middle states, where any seeds drop in the higher spots and vegetate, they may be often successfully removed in November and March into the nursery.

44.—*Althæa Frutex, Laburnum, and Snowy Medlar.*

1. The *Althæa Frutex* is propagated by sowing the seeds in March, which grow very freely, by covering them about half an inch deep.

2. The *Common Laburnum* grows freely—to be treated as No. 1.

3. *Maspilis Canadensis*, or snowy medlar, is a beautiful flowering shrub, and very ornamental to pleasure grounds. It is propagated abundantly by seeds, which should be preserved in sand, until they are sown in March; to be covered about half an inch deep. They may also be grafted or budded on the common medlar, &c.

45.—*Calycanthus, Franklinia, and Gordonia.*

1. The *Calycanthus floridus*, or sweet scented shrub, is easily propagated by layers and suckers. The most suitable time for laying it, is in autumn, and by the second spring after, i. e. eighteen months after laying, they may be taken off and planted out. If to be removed to a distance, they should be planted in tubs or boxes in the fall, with the same earth as that of the parent stock, and transplanted in the spring.

2. The *Franklinia Altamaha*, of Bartram, is a most beautiful plant. It may be propagated as No. 1.

3. The *Gordonia* tribe, which are very ornamental shrubs, may be propagated as the others.

46.—*Rhus, or Common Sumach, 5 kinds; Rhus Coriaria, Tanner's Sumach.*

1. The various kinds of *Rhus*, or sumach, may be propagated by suckers, layers, and seeds. The seeds, if preserved carefully in air-tight bottles, and sown early in March, will come up freely the same season; after they have a sufficient growth, they may be transplanted as desired.

2. *Rhus Coriaria*, or tanner's sumach, would succeed well in the southern states. It is used for tanning morocco leather; it may readily be propagated by seed, which, if sown soon after it is ripe, or pre-

served carefully till spring, will grow freely the first year; it may also be propagated by suckers, which it produces liberally, or by layers. It will thrive in warm situations, in the middle states.

47.—*Rhododendron, Kalmia, Azalia, and Andromeda.* Each and every species and variety of the above beautiful tribes, may be propagated either by seeds, layers, or suckers. The fruit plants are always raised from seed, which is nature's favourite method.

The capsules should be collected, when the seeds are perfectly ripe, and as the best way is to sow the seed immediately, expose the capsules a few days, in the shade to dry; they will then open, and the seeds will easily shake out. Those which are intended to be kept till February and March, should remain in their capsules till then. Sow some in the fall, on a shady border of light, dry, loamy earth, and some in boxes, making the ground very fine and even on the surface; then sow the seeds thickly thereon, and cover them not more than the eighth of an inch deep, or rather so as barely to hide them. Immediately cover the beds or boxes with moss, to protect the surface and vegetating seed from the influence of the sun and parching air; it will be necessary also to shade them, and give frequent sprinklings of water. When the plants begin to appear, expose them, by slow degrees, as they acquire strength. If the boxes were to be placed in a green-house, or under the protection of garden frames and glasses, from the time of sowing the seed, until the middle of May, it would be of advantage, observing to shade them from the mid-day sun. Towards the middle of May, remove the boxes, where they may have the morning sun till nine o'clock, and the afternoon sun, after four, to remain in this situation, till the latter end of October, then place them in a warm exposure, till the approach of frost, when they may be put into a garden frame, and slightly protected during winter. After taking similar care of them for two years, plant them in nursery rows, in April, as directed for firs and pines, covering the

ground around their roots with moss, to keep it moist, until the plants are established.

48.—*The Judas, Snowdrop, and Fringe Trees.*

1. The *Cercis Canadensis*, or American Judas tree, is a beautiful and ornamental early flowering plant, and may be propagated by sowing its seeds in March, as directed for the common locust tree.

2. The *Halesia tretraptera*, or snowdrop tree, is exceeded by very few shrubs; its numerous white pendent flowers are remarkably beautiful. It may be propagated by suckers and layers, or by sowing the seeds in November, when ripe, or in March, and covering them near an inch deep with fine, light, rich mould.

3. The *Chionanthus Virginiana*, or fringe tree, is a very ornamental shrub, and may be propagated by layers, suckers, or seeds. Sow the seeds, when ripe, in autumn, covering them with very fine light mould. Many will not rise till the second year, so that it will be necessary to keep the ground very free from weeds, &c. all the time.

49.—*White, Black, and Red Mulberry.*

The white, black, and red mulberry may be all propagated by layers, cuttings, and seed.

50.—*The Paper Mulberry.*

Morus Papyrifera, or paper mulberry, makes very strong vigorous shoots, but is not of tall growth; it sends up an abundance of suckers from the roots, by which it is easily propagated.

51.—*The Calabrian, or Manna Ash.*

There are two particular species of ash, from which manna is collected, and which might be cultivated to advantage in the southern states.

1. The *Fraxinus Ornus*, or flowering ash, which is the principal kind cultivated for Manna.

2. The *Fraxinus rotundifolia*, or round leaved ash, which also produces manna, bnt not in as great quantities as the former. Both these kinds may be raised

from seed. as directed in page 216, No. 34, or by grafting or budding them on any other species of ash.

52.—*Grafting Forest Trees and Ornamental Shrubs.*
The latter end of this month will suit to graft forest trees, flowering and ornamental shrubs, such as elms, ash, oaks, hollies, robinias, double flowering thorns, altheas, &c.

53.—*Transplanting young Trees and Shrubs.*
All hardy kinds of deciduous trees and shrubs, may now, in mild weather, be transplanted, either into nursery rows, or where they are finally to remain.

54.—*Propagating Gooseberries and Currants.*
The best method of propagating gooseberries and currants, is by cuttings. The proper cuttings for planting, are the shoots of the last summer's production of straight clean growth, taken from such trees as bear the finest fruit.

Previous to planting, cut off every bud as close as possible to the shoot, except three, four, or five, near the top, which are to be left, to form the head of the plant.

The cuttings being prepared, plant them in rows, 18 inches or two feet asunder, and about eight or nine inches apart in the rows, always inserting them either six, eight, or nine inches into the earth, leaving from four to eight inches of a clean stem, between the surface of the earth and the lowest bud, from which to establish the head. Having had one or two years growth in these rows, they may be planted out, either in autumn, or early in the spring, where intended for fruiting; but autumn is the most preferable season. Gooseberries, of all other fruit trees, require the richest soil.

55.—*Weeding Seedling Trees and Shrubs.*
Look over the seed-beds of young trees and shrubs; if weeds appear in them, let them be carefully picked

out by hand in time, before they mix their roots with those of the plants.

It will be proper in dry warm weather, to refresh the seed-beds of small young trees and shrubs with occasional waterings; let this be done early in the mornings. or late in the evenings.

56.—*Digging Vacant Ground.*

The digging and trenching of vacant ground in the nursery, designed for plantations of young trees, shrubs, &c. this spring, should now be completed as soon as possible, in due time for the reception of the respective plants intended, which in the deciduous kinds particularly, should be generally finished by the middle or latter end of this month, and the evergreens soon after that time.

Finish all digging between the rows of young trees, and in all the vacant ground of the nursery, provided the ground will fall from the spade readily, and crumble.

FOR APRIL.

General Observations.

THE sowing of the seeds of all kinds of trees and shrubs, except those that have had a year's previous preparation, such as haws, &c. and also grafting, may successfully be practised in the middle states, in this month, and in the eastern states, till near the latter end thereof, and the sooner in the month such care can be extended, provided the ground is in a condition suitable, and the weather favourable, the better. Propaga-

tions by layers, suckers, and cuttings, may also be performed, in the early part of this month, both in the middle and eastern states, and indeed in the latter, it is the most eligible season, for the performance of that work.

2.—*Transplanting.*

All hardy evergreen trees, shrubs, seedlings, and others, may be transplanted, in the first week of this month, (earlier in the southern states, but not much later in the eastern) with a certainty of success.

Pines and firs of all kinds, may now be removed; likewise cedars, junipers, kalmias, and rhododendrons, pyracanthas, hollies, evergreen oaks, and yews; also, alaternuses, phillyreas, arbor-vitæs, and evergreen pines, with many others.

The seedlings are to be planted, as directed in March, the others as in page 213, and immediately after, they should have a good watering, to settle the earth about their roots; likewise any deciduous shrubs and trees of the late shooting kinds, may yet be transplanted, if done early in the month.

3.—*Care of new planted Trees and Shrubs.*

Water the new plantations of evergreens and flowering shrubs, &c. but in particular those deciduous kinds, that have been transplanted in autumn, or early in spring, once a week will do, always observing during this month, to water them early in the morning.

4.—*New Grafted Trees.*

Examine the new grafted trees; the clay is sometimes apt to fall off or crack, so as to admit air and wet to the grafts, in which case it may be replaced.

Where there are any shoots produced from the stocks below the grafts, rub them off; for these, if permitted to grow, would starve the young shoots; be careful also to take out all root suckers.

6.—*Budded Trees.*

Budded trees should always be looked over about this time; for those that were worked last summer, will now be making their first shoots, and therefore demand attention.

The first shoots from the inoculated buds, are in some seasons apt to be attacked by insects or blights, and then, if not prevented, will injure them greatly, and sometimes entirely spoil them; but by timely attention, it may be in great measure prevented. Where the ends of the young shoots appear crumpled, and the leaves curled, let them be carefully taken off and burned, for they are full of small insects. By this attention, the vermin may be prevented from spreading farther.

Also observe that all shoots, which put out from the stock, except the proper inserted bud, must be frequently rubbed off, that its whole efforts may go to the support of the bud-shoots only.

7.—*The management of Seed Beds.*

The seed-beds of all kinds of trees and shrubs, should be watered occasionally in dry weather; this must be performed both before and after the plants begin to appear.

Observe at all times to water these beds with moderation; be particularly careful as to the more tender and delicate kinds, generally let the refreshments of water be repeated moderately every two days, in warm dry weather.

Shade will also prove *very beneficial* in the middle of hot sunny days, to many of the choice kinds of seedling trees and shrubs, about the time of their first appearing, and for some time after.

These young plants may be shaded from the sun occasionally, by fixing hoops across the beds, then let mats, canvas, or the like, be drawn over the hoops as often as occasion requires.

1.—*Hoeing and Weeding.*

Hoe and destroy the weeds between the rows of young trees; choose dry weather, let the hoe be sharp, and cut them up clean within the ground.

Weeds should always be destroyed as soon as possible, for if suffered to ripen, and shed their seeds, they will lay the foundation of much trouble, that by timely exertion, might be avoided.

9.—*Grafting Hollies, &c.*

Graft hollies with cuttings of the variegated kinds. The first fortnight in this month, is the most seasonable time, to perform this work, in the middle states.

The common green holly is the proper stock, to graft the variegated kinds upon, and the stocks for this purpose, must not be less than three or four years growth from the seed, but those of five or six answer perfectly well.

Procure some cuttings or grafts, of the best variegated kinds; they must be shoots of the last summer's growth; graft them with great exactness, according to the general method of whip-grafting—see page 202.

Also graft any other curious varieties of trees on stocks on their own kinds; but in most fruit trees, where grafting remains to be done, no time should be lost in forwarding it early in the month.

10.—*Inarching.*

Inarching may be performed now on evergreens, and on any kinds of shrubs, that you desire to propagate that way.

This method of grafting, is principally designed for these kinds, which are not easily raised by common grafting or budding, or by seed, layers, or cuttings or any of the general methods.

The evergreen kinds may be inarched towards the end of this month, but deciduous sorts generally succeed best, when done about the middle of it. For the method, see page 206.

FOR MAY.

1.—*General Observations.*

WEEDS should be destroyed at this season, in all parts of the nursery, and the hoe must be applied whenever you can use it.

Be careful to keep the seed-beds of all young trees and shrubs, perfectly clear from weeds, which must always be done by a hoe or spade, and hand-weeding the rows.

Watering the seed-beds.—Should the weather now prove dry, all the seed-beds, and also the evergreens, such as pines and firs, &c. ought to be frequently watered, and care taken, that it is not done too hastily, lest it should wash the earth from the young roots, and expose them too much to the sun.

New plantations of the more curious and valuable sorts of evergreens and flowering shrubs, should be watered; if occasionally given to the leaves and branches, as well as to the roots, it will wash off any dirt, which they may have contracted.

Such plants as you have in pots, should be treated, as directed for those of the green-house department.

2.—*Propagating Evergreens, &c. by Layers.*

Begin to propagate, about the latter end of this month, evergreens and other shrubs, by layers; take the young shoots of the present year, as they do not always succeed well from those of the old wood.

When the young shoots are from eight to ten or twelve inches long, lay them into the earth, from two to six inches deep, according to their size; fasten them well with hooked pegs, and draw the earth over the parts laid; when done, water them moderately, and repeat it occasionally; this will keep the earth moist, and encourage their shooting. Many kinds will be rooted by October, and may then be taken off a removed.

3.—*Shading and sifting earth over the Seedlings.*

All the slow growing and tender seedlings, especially the evergreens, should, after having newly come up, be shaded occasionally from the mid-day sun; then sift some fine light earth over them, as much as will cover their stems up to the seed leaves.

4.—*Newly Grafted and Budded Trees.*

Suffer no shoots to remain, that arise from the stocks below the grafts, all should be overlooked once a week, and when such appear, let them be immediately rubbed off, that the whole nourishment may go to support the cions.

The trees which were budded last summer, must also be carefully and frequently looked over, and all improper shoots rubbed off.

5.—*Seedlings in Pots or Tubs.*

The pots and tubs of the more rare and delicate seedling plants, should now be kept constantly in the shade; and a little earth sifted over them, as directed for other seedlings, will be of service.

FOR JUNE.

1.—*General Observations.*

ATTEND to No. 1, in last month. Sift some loose earth over the seedlings, firs, and pines, as high as their seed leaves; trim up evergreens. Budding *may* now be practised on most kinds of trees and shrubs; but it would be much better, to be done the latter end of July, &c. see Nursery for July. Rub off all young shoots, proceeding from the stocks, which are independent of the grafts, or the inserted bud shoots.

2.—*Propagating Evergreens, &c. and Shrubs, by layers.*

Most kinds of evergreens and deciduous trees and shrubs, may now be propagated by laying the present year's shoots. Being soft and tender, they will emit roots much more freely, than the older wood, and several kinds that would not root for two years, if laid in spring or autumn, by this method will be well rooted, the autumn twelve months after laying, and many kinds before the ensuing winter. Virgin's bower, passion-flowers, trumpet-flowers, common jasmine, and most of the climbing plants, root immediately; when laid in this month, water them occasionally in dry weather, and lay mulch around them.

3.—*On Inoculation or Budding.*

Provide a neat sharp budding knife, with a flat thin haft of ivory, suitable to open the bark of the stock,

for the admission of the bud, and also with a sufficiency of bass strings, or shreds of Russian mats, or woollen yarn, to bind round it when inserted.

In the first volume of the transactions of the London Horticultural Society, the following improved mode of inoculation is described by Mr. Knight.—In the month of June, when the buds are in a proper state, the operation is performed, by employing two distinct ligatures, to hold the buds in their places; one ligature is first placed above the bud inserted, and upon the transverse section through the bark, the other, the only office of which, is to secure the bud, is applied in the usual way; as soon as the buds have attached themselves, the lower ligatures are taken off, but the others are suffered to remain. The passage of the sap upwards is in consequence much obstructed, and the inserted buds begin to vegetate strongly in July; when these afford shoots about four inches long, the upper ligatures are taken off, to permit the excess of sap to pass on; the wood ripens well, and affords blossoms sometimes for the succeeding spring.

It will be perceived, that instead of the usual mode of budding, after the commencement of the autumnal flow of sap, and keeping the bud without shooting, until the following spring, when the top of the stock is cut off, this improved mode gains a season, in point of maturity, if not of growth, and has the effect of ingrafting the preceding spring, in all cases where the bud sprouts in the proper time, to form a strong shoot, capable of sustaining without injury, the frost of the ensuing winter.

FOR JULY.

1.—*General Observations.*

BE particular in attending to weeding, shading, and watering, as directed in last month, which see.

You should continue to train the evergreens, as you desire, and trim off all unnecessary shoots from forest trees and others.

2.—*Budding or Inoculating.*

The budding or inoculating of cherries, plums, pears, &c. is recommended by many gardeners, to be performed in the middle states, in this month, but it would be better to have been done, as described last month, which see, provided the wood will separate from the eye of the bud.

Apricots, if budded on plum stocks, or those of its own kinds, may be done in this month.

FOR AUGUST.

1.—*General Observations.*

ALL kinds of seedling trees and shrubs, must now be kept perfectly clear from weeds; in dry weather,

be careful to water them frequently, whether in beds, boxes, or pots.

Hoe the ground well between the rows of trees, and train up the various sorts of forest trees and shrubs; but leave some small shoots to detain the sap, for the strengthening of those parts.

Towards the end of this month, prepare the ground for autumn planting, and begin to clear and trench those vacant places, where you intend to plant trees or shrubs of any kind, in October or November, &c.

If the land be of a stiff nature, lay it up in high sloping ridges, by exposing more surface to the sun, rain, and dews, which will greatly improve it, and it can by this means, be the more expeditiously levelled down, and rendered in a condition fit for planting when necessary.

2.—*Budding or Inoculating.*

It will answer at this season, to bud peaches, nectarines, almonds, apples, and pears, also apricots on peach or almond stocks; but when the apricot is to be budded on the plum, it ought to be done in July.

Cherries, plums, or any other fruit trees, may be budded this month, if the bark parts freely from the stock. Pears and apples must be inoculated early in the month, while the sap flows freely; but the peach, nectarine, and almond, will succeed any time between the first of August and twentieth of September, provided the stocks are young and vigorous.

You may now inoculate all such curious trees and shrubs, as you wish to propagate in that way, almost all will succeed, if budded on suitable stocks; but when the bark will not part freely, it will be fruitless to attempt it. Many sorts now have a second growth, and when that is the case, it will answer to bud them.

3.—*Newly Budded Trees.*

Carefully examine the stocks, which were budded in June and July, loosen the bandages, and where any

shoots are produced below the buds, rub them off; cut off all shoots, which are produced below the inoculations or grafts, formerly done.

4.—Preserve Stones of Fruit.

Peach, plum, apricot, and cherry stones, should be carefully collected, to plant for raising stocks. Plant them immediately in the seed-beds, and you may continue to collect and plant, till the ground is frozen; for although it will answer to plant them in spring, in case of necessity, yet very few will vegetate then.

FOR SEPTEMBER.

1.—General Observations.

TAKE every oportunity with the hoe, in dry weather, to clean out all the weeds from the seed-beds and young trees, shrubs, &c. hand-weed where necessary, continue to water regularly all the plants in pots or boxes, also the new planted flowers, when the weather is dry.

Towards the latter end of the month, begin to set in pots singly, the young tender plants, which were raised from seed this year; place them in the shade for about three weeks, until they are newly rooted; after which, place them in a warm exposure, till the approach of frost, when they must be removed into the green-house.

Embrace every leisure moment, to dig and prepare all vacant places, in which fruit tree stocks, trees, or shrubs are to be planted in October or November.

2.—Budding or Inoculating.

Continue to inoculate peaches, nectarines, and almonds.

Untie the bandages of such plants, as have been budded three or four weeks.

3.—Propagating Trees and Shrubs, by Cuttings and Layers.

Begin in the last week of this month, to propagate gooseberries, currants, honeysuckles, and several other hardy trees and shrubs, by cuttings; plant them in shady borders. However, this is better to be done in October; for wood imperfectly ripened, when cut off and planted in this month, seldom can bear the heat of the sun in our climates, unless it is, for some time after, screened therefrom.

The general propagation by layers, may be commenced towards the latter end of this month. For directions, see page 164, Fruit Garden.

4.—Fruit Stones.

Peach, plum, cherry stones, &c. may now be planted, as directed in page 236.

5.—Trimming Pines and Firs.

Where pines, firs, and other resinous trees, require some of their branches cut off, this is the best time in the year for trimming them, as they are not so apt to weep now, as in the spring, and their wounds will have time nearly to heal before winter.

Walnut trees and maples should also be trimmed at this season, for the reasons above mentioned.

FOR OCTOBER.

1.—*General Observations.*

CONTINUE to trench and prepare the several quarters, in which you intend to plant stocks, to graft and bud the several sorts of fruit upon, and also for the various other planting and sowing, that may be necessary.

Carry manure into those parts of the nursery, where it is wanted, and spread it upon the surface of the ground, round the stems of young trees; this will contribute to the preservation of their roots from frost; the rains will wash in the salts to the roots of the trees, and in spring you may dig in the manure between the respective rows.

2.—*Propagating Trees and Shrubs by Layers.*

This month lay the various kinds of trees and shrubs, which you wish to propagate in that way. For the method, &c. see page 144, Fruit Garden.

This is the best season to lay elms, limes, maples, most kinds of hardy forest trees, and flowering shrubs, for the moisture of the ground, during winter, will prepare them for pushing out roots, early in the spring.

Towards the latter end of the month, take off such layers of the preceding year. as are well rooted; trim their stems, and plant them in nursery rows, or elsewhere.

3.—*Propagating Trees and Shrubs by Cuttings.*

Plant cuttings of all hardy trees and shrubs, that will grow by this method.

Cuttings of all sorts, planted a year ago, or last spring, that are well rooted, may, towards the latter end of this month, be transplanted into nursery rows.

4.—*Planting Acorns, Chesnuts, Chinquapins, Walnuts, Hickory-nuts, &c.*

The best season in the year for planting acorns of every kind of oak, and also all the nuts enumerated above, is immediately after they fall from the trees, for when kept out of the ground much longer in a dry state, they lose their vegetating principle.

By sowing them at their proper season, they are subject to the depredations of mice, rats, and moles, therefore it is recommended by many gardeners, to preserve them, till the early spring months, either in sand, earth, or moss, and although they will sprout, yet this vegetation will not materially injure them, if they are set in a cold place till winter, provided the small radicles are not broken, when planted in spring.

The *acorns* when planted, should be in drills, about two feet apart, and within an inch of each other in the drills, and covered about an inch deep, where they may remain, till they have had two years growth, when they must be taken up, and planted in nursery rows.

Chesnuts, *walnuts*, and *hickory-nuts* may also be planted in autumn, immediately after they are ripe, in their outward covers or husks, the extreme bitterness of which, as well as the species of the chesnuts, will preserve them, in some measure, against the attacks of vermin.

Chinquapins, ripening earlier than chesnuts, should, as soon as they have arrived to maturity, be planted in their husks, as the vegetative germ in most of them, is destroyed by the worm, particularly if kept for any length of time. They prefer a lean gravelly soil, and do not rise above twenty to thirty feet high. After

these are planted, cover them about an inch with good earth, and when they have two years growth, they, as well as the chesnuts, may be taken up, and planted in nursery rows.

The *Juglans Regia*, or European walnut, also the soft-shelled hickory-nut, and oval-shaped Illinois-nut, when they are to be cultivated for their fruit, you should make choice of the best nuts, of the varieties you wish to propagate, such as are large, thin shelled, and have the finest flavoured kernels; plant them in drills three feet asunder, and the nuts to be planted about six inches from one another in the rows.

The whole of the above kinds may remain in the seed drills, for two years, and as they are generally subject to strike down, and not to force out many lateral shoots, it will be necessary, when they have had one or two years growth, to open a small trench, close to each row, in the spring, and with a very sharp spade, to cut the top roots about six or eight inches under ground, and afterwards throw back the earth. This will cause them to shoot out a number of laterals, and the spring following, they may be transplanted into nursery rows, to remain till finally planted out.

But the European walnut will answer better, to be planted, where it is to remain for fruiting. When it is to be cultivated in this manner, previous to planting it, dig a hole about two feet wide, and eighteen inches deep, in which place a flat stone, two feet square, then fill the hole up with good earth, plant three or four walnuts in the centre, that there may be a greater certainty, of having one plant in the place, in the spring. The stone is intended to compel the top root to put forth lateral shoots, without injuring the growth of the plant, and, besides, when the top root is mutilated, although the tree may flourish for a few years, yet when it arrives to a full size for bearing, it gradually decays; but if the top root is not diverted from striking to a full depth into the soil, it will prove an excellent timber tree, but will not be so productive as a bearer.

When *oaks, chesnuts, walnuts, or hickories,* are planted exclusively for their timber, it will be far preferable, to plant the acorns and nuts, when they are to remain for full and mature growth, as timber and forest trees seldom attain to so great a magnitude, after their top roots are cut off, and they transplanted, as if suffered to remain undisturbed, where the seeds were sown. This remark, of course, offers an objection to the nursery culture of timber trees.

5.—Transplanting Stocks to Bud or Graft on.

Plant out into nursery rows, all the hardy kinds of seedling stocks, to bud and graft the different varieties of fruit upon.

Where stocks can be had in sufficient quantities from seed; they are always preferable to suckers from the roots, but where there is a deficiency of the former, the latter will answer. Plant them in rows three feet asunder, and one foot distant from each other in the rows.

Transplant all well-rooted cuttings and layers from the shoots, for the purpose of raising stocks, particularly quinces and codlins, to bud and graft dwarf pears and apples upon, to form dwarf trees for walls and espaliers.

6.—Planting Hardy Deciduous Trees and Shrubs.

Hardy deciduous trees and shrubs may be planted into nursery rows, or where they are finally to remain, immediately after they have shed their foliage.

7.—Pruning.

In the latter end of this month, begin to prune most kinds of hardy deciduous forest and fruit trees, flowering shrubs, &c. clearing their stems from lateral shoots, taking off suckers, and forming their heads in a neat manner.

8.—*Sowing Stones of Fruit Trees.*

The stones of plums, peaches, nectarines, apricots, &c. may now be sown, or they may be preserved in sand, &c. to be planted in March.

9.—*Sowing Beech-mast, Maple, &c.*

The seeds of beech, maple, and other kinds of deciduous trees, may be either sown now, or in March. See Nursery, March.

10.—*Apple, Crab, and Pear Pomace.*

The pomace of apples, crabs, and pears, may be sown thick, and covered over one inch with good rich light earth. In spring the plant will rise freely, and furnish stocks for grafting, &c. Some make hedges of the crab.

FOR NOVEMBER.

1.—*General Observations.*

CONTINUE to dig and trench the ground, to forward the business for spring.

Where it is necessary to manure any part, it should be carried and spread over the ground, previous to digging. This season will be more suitable to perform this work, than at the time of planting,

2.—*Transplanting.*

Finish all the nursery transplanting, as early in this month as possible.

3.—*Protecting Seedlings and young Plants.*

Sift some dry fresh earth over the seedling pines, which have sprung from the seed sown last spring, so as nearly to reach the foliage, in order to protect the tender stems from the severity of the winter. Drive forked stakes along the edges and ends of the beds, and in these forks tie poles, the length of the bed on each side; then lay thin strips across from pole to pole; just above the foliage of the pines, the strips are to be fastened down, and over these lay a thin covering of straw, which may be wattled together, to prevent it being blown away; these will, in some degree, check the severity of the frost, from injuring the plants.

All seedlings, that are rather tender, should have hoop arches over the beds, and at the time of severe frosts, thick mats, &c. placed on them in order to protect the plants.

Every kind of hardy plants in pots, should now be removed to such places, where they may have sufficient protection in severe weather; for if fully exposed to the frost, the plants will be injured, and the pots broken by it.

When hardy and exotic plants are set out in large pots, these may be plunged to their rims, in a warm border, and covered six inches deep over their edges, with tanner's bark, &c. which will considerably preserve their roots.

The more curious kinds of evergreens, and other plants in pots, should be removed into the green-house, or under garden frames, with glasses or other covering.

4.—*Care of new planted Trees.*

Tie up all new planted trees to stakes, especially those which may be exposed to the winds.

Lay some light litter over the roots of the more tender kind of trees and shrubs, to protect them, in some measure, from frost.

5.—*Pruning Trees and Shrubs.*

Hardy forest, ornamental trees or flowering shrubs, &c. may now be brought to their proper form, by cutting off the straggling branches, and trimming up the stems of such as require it; but the more tender sorts thould not be pruned till spring.

FOR DECEMBER.

1.—*General Observations.*

CONTINUE your care of the more curious and tender sorts of new planted trees and shrubs; also your seedling pines, &c. as well as the hardy and exotick plants in pots, are to be attended to, as directed in November.

Acorn beds, or those of any other tree seeds, which were sown in the preceding months, would be benefitted, by laying fern leaves, straw, &c. over them, as long as hard frost continues, which must be removed, when the ground is clear of frost in spring, otherwise it will invite mice, &c. to destroy the seeds.

2.—*Southern States.*

When the ground is in *good condition* for working, you may now sow hawthorn, holly, yew, mezereon, &c. and all other seeds, that require a year's preparation, such as Stewartia, Malacodendron, ash, Euonymus, horn-bean, and many other sorts. For the method, see Nursery.

Continue to dig between the rows of young trees and shrubs; also forward the manuring and trenching

of such pieces of ground, as you wish to plant with young trees, in the ensuing months.

Continue to make layers, and plant cuttings of any kinds of trees and shrubs, that succeed by these means, and also dig up and transplant suckers; prune roses and other hardy shrubs, also forest, and other fruit trees, in training. Plant out into rows, the various kinds of hardy deciduous trees and shrubs—see March. These instructions are intended for such parts of the Union, where the frost, during winter, does not prevent the ploughing of the ground.

SHRUBBERY.

1. By this title is intended merely a treatise on the culture of shrubs.

Shrubs are usually distributed over pleasure grounds, sometimes in association with flowers, and sometimes with trees, or for a short space in a continued line, as the object is ornament, shelter, or to form a side screen. The diversity created by shrubs, in combination with flowers, will, if judiciously arranged, always delight. It is certain, that the improver of grounds, without this class of plants, would be deprived of one of the most easily disposed, and most beautiful materials.

Both trees and shrubs put forth in autumn germs or inception buds, in the axis of the decayed leaf; these are so many little *ova*, enclosing the rudiments of leaves and flowers, which, during winter, remain in the plant in a dormant state, and in the following spring, are gradually exposed.

As to the under shrubs, such as sage and thyme, they do not put forth, in autumn, these germs or incipient buds, thus to winter on the plants in a dormant state.

Such shrubs as are not sufficiently hardy to be cultivated in the open ground, will be found in the GREEN-HOUSE or HOT-HOUSE department.

Deciduous and *evergreen* are distinctions, strongly marked by nature, and they cannot be neglected in

catalogues of plants, without considerably diminishing their utility. The tables below contain the generic or specific names of the principal *hardy deciduous*, and *hardy evergreen shrubs*, with a list of *under shrubs*.

TABLE 1. *Hardy Deciduous Shrubs and low Trees.*

1 *Amorpha*, False Indigo
2 *Amygdalus*. Almond
3 *Andromeda*, Peat-plant; most of the species are American
4 *Annona triloba*, three-lobed custard apple
5 *Aralia*, Angelica tree
6 *Astragane*
7 *Atriplex*. Orach
8 *Azalea*, American honeysuckle
9 *Baccharis halimifolia*, Virginian Groundsel tree
10 *Berberis*, Barberry tree
11 *Bignonia*. Trumpet flower, or scarlet jasmine; a North American climber
12 *Bupleurum*, Hare's ear
13 *Calycanthus floridus*, Carolina Allspice, or sweet scented shrub
14 *Celastrus*, Staff tree, a climber
15 *Celtis*. Nettle tree
16 *Cercis*, Judas tree
17 *Chionanthus*, Fringe tree, or Virginian snowdrop tree
18 *Clematis*. Virgin's bower, a climber
19 *Clethra alnifolia*, Alder-leaved Clethra
20 *Colutea*, Bladder Sena
21 *Comptonia Asplenifolia*
22 *Coriaria*, Myrtle-leaved laurel
23 *Cornus*, Cornelian Cherry, or Dogwood
24 *Coronilla*, Scorpion Sena, or jointed podded Calutea
25 *Corylus*, Hazle-nut and Filbert
26 *Cratægus*. Hawthorn and Wild Service
27 *Cupressus*, Cypress
28 *Cytisus*, Trefoil tree
29 *Daphne*, Spurge laurel, Cneorum and Alpina
30 *Dirca palustris*, Marsh Leatherwood
31 *Euonimus*, Spindle tree
32 *Fagus Pumila*, Chinquapin
33 *Fothergilla*
34 *Franklinia Altamaha*, of Bartram
35 *Genista*, Jointed-broom
36 *Gleditsia*, Triple-thorned Acacia
37 *Glycine*. Kidney bean tree, a climber
38 *Halesia*. Snowdrop tree
39 *Hamamelis*, Witch Hazel
40 *Hedera*, Ivy; the deciduous Virginian creeper
41 *Hibiscus*, Shrubby Syrian Mallow, including Althea frutex
42 *Hippophaë*. Sea Buckthorn
43 *Hydrangea*. The American species require a moist soil, but must be sheltered from frost—rises about three feet high—cultivated for variety
44 *Hypericum*, St. John's Wort
45 *Jasminum*, Jasmine
46 *Ilex*, Holly, including the Prinoides, a deciduous shrub
47 *Itea*
48 *Laurus*, Laurel, comprehending the Benjamin tree & sassafras
49 *Ligustrum*, Deciduous Privet
50 *Lonicera*, Honeysuckle
51 *Magnolia*, Laurel-leaved tulip tree, including the Glauca, & the tripetala, both North American
52 *Menispermum*, Moonseed
53 *Mespilus*, Medlar, 6 species
54 *Mimosa Julibrisin*, Tree Sensitive Plant
55 *Morus papyrifera*, The paper-yielding mulberry of Japan; very hardy
56 *Myrica*, Myrtle, including the Gale, Dutch myrtle, and the Cerifera Carolinensis. The Carolina wax-bearer is a peat plant. Shade in summer, and plentiful watering, is a sufficient compensation to either, for not being placed while young in a moist soil. When propagated by seed, it is best to sow them in boxes. The leaves of the Carolinian are delightfully fragrant
57 *Nyssa aquatica*, Tupelo tree

58 *Passiflora cærulea*, Blue rayed passion flower; a creeper, will ascend 30 feet
59 *Periploca*, Virginian Silk
60 *Philadelphus*, Syringa, or Mock Orange
61 *Potentilla*, Shrubby Cinquefoil
62 *Prinos*, Winter berry
63 *Prunus*, The Dwarf Plum
64 *Ptelea trifoliata*, Carolinian shrubby trefoil
65 *Punica*, Pomegranate tree, single and double
66 *Rhamnus*, Buckthorn
67 *Rhus*, Sumach, including the poison tree
68 *Robinia*, False Acacia. The *Hispida* or *Rose Acacia* is very ornamental; the *Viscosa* handsome. The *Ferox* is a beautiful shrub, rising to the height of 8 feet, with leaves of a bright green, and bearing yellow flowers. The *Caragana* is a tree about twenty feet high; a native of the severest climates of Northern Asia. Its culture consists in being planted in a lightish sandy soil, in which no manure has been recently mixed, though it will be better for a proportion of loam. It thrives best near a river, or on the edge of a brook, but soon dies, if planted in a marshy spot, where the water stagnates. In a soil not suited to its constitution, this tree degenerates into a shrub
69 *Rosa*, The Rose and the Sweet Briar
70 *Rubus*, Bramble or Blackberry, and Raspberry
71 *Salix*, The Willow
72 *Sambucus*, Elder
73 *Smilax*, Rough Bindweed
74 *Sorbus*, Service—See Fruit Garden and Nursery
75 *Sparteum*, Broom
76 *Spiræa frutex*, Shrubby Spiræa
77 *Staphylea*, Bladder tree
78 *Stuartia*
79 *Syringa*, Lilac
80 *Tamarix*, Tamarisk tree
81 *Teucrium*, Germander
82 *Vaccinium*, Bilberry or Whortleberry
83 *Viburnum*, Wayfaring tree; including the Opulus, or Guelder Rose, and the Snowball tree
84 *Vitex Agnus Castus*, or Chaste tree
85 *Zanthoxylum*, Tooth-ache tree

Table II. *Hardy Evergreen Shrubs and low Trees.*

1 *Arbutus*, Strawberry tree
2 *Baccharis halimifolia*, Groundsel tree
3 *Bignonia*, Trumpet flower; including the evergreen climbing Virginian
4 *Buxus*, Box tree
5 *Cistus*, Rock Rose; the species very beautiful, as first rate flowering shrubs and evergreens
6 *Cupressus*, Cypress tree
7 *Cytisus*, Trefoil tree
8 *Daphne*, Spurge Laurel
9 *Daphne Cneorum*, Widow Wail; propagated from seeds
10 *Enonymus Americanus*, Evergreen Spindle tree
11 *Gaultheria procumbens*, Canadian Gaultheria
12 *Genista candicans*, Evergreen Broom
13 *Gordonia*, An American peat plant
14 *Hedera*, Ivy; a creeper
15 *Juniperus*, Juniper; including the savin tree
16 *Ilex*, Holly
17 *Kalmia*
18 *Laurus*, Bay tree
19 *Lavatera*. The plants are easily propagated by seed, and thrive best when suffered to remain where sown. In a warm sandy situation and soil, the Lavatera tribe sometimes continue to exhibit their beauties for many years; but in general they are short lived, continuing only two or three years; on this account they are particularly eligible, to be scattered plentifully in a newly made shrubbery; they will afford warmth to young plants, and will die away before the compass they occupy will be required for the expanding shrubs of longer duration
20 *Ledum*, Marsh Cistus.

21 *Ligustrum sempervirens*, Evergreen Privet
22 *Mespilus*, including Pyracantha
23 *Phillyrea*. When raised from seed, the mould to receive it should be made fine, and will be improved by a mixture of drift sand. The seeds ripen in autumn, and should be sown soon after; they do not come up till the second spring. For two winters after they have appeared, the beds should be hooped and matted; for though the trees are tolerably hardy, when grown large, the seedling plants are rather tender. In the third autumn, having waited for the rainy season, plant them out, & they will immediately strike root.
24 *Phlomis*, Jerusalem Sage; a very beautiful plant
25 *Pinus*, including the Canadian Hemlock fir, the Newfoundland Spruce, and the Oriental fir
26 *Prinos*, Winterberry
27 *Quercus coccifera*, The Scarlet or Kermes Oak
28 *Rhamnus*, Buckthorn
29 *Rhododendron*, Dwarf Rosebay
30 *Rosa*, comprising the musk rose, and a variety of the sweet briar
31 *Ruscus*. Butcher's Broom, or tree holly
32 *Thea*, Tea Plant
33 *Thuja Orientalis*, Chinese Arbor-vitæ
34 *Vaccinium*, Bilberry
35 *Viburnum tinus*, Laurustinus

TABLE III. *Hardy Deciduous under Shrubs.*

1 *Ceanothus*, New-Jersey tea tree; a native of North America. The stem, which is of a pale brown, sends out branches from the bottom thin and flexuose, and of a reddish colour. The leaves, which are light green, are late in the spring before they shoot. This shrub blows in July; the white flowers growing in clusters at the ends of the twigs, give it a most beautiful appearance, indeed they almost cover it, as the ornamental leaves intermingled with them, appear at a distance like myrtle in a nosegay. The blossom is inodorous, and is succeeded by small brownish fruit, in which the seeds ripen. This shrub is propagated both by layers & seeds. The best time of laying it is in summer, just before the time of flowering. Lay the tender twigs of the spring shoots in the earth, & nip off the end which would produce the flowers; let the plants remain on the stools until the spring, when they should be taken off. The best rooted and the strongest may be planted in a dry soil, and well sheltered place, where they are to remain; while the weakest should be set in pots, guarded from frosts during winter, and planted out in the following spring.

When this shrub is raised from seeds, prepare pots of compost, consisting of two-thirds of well tempered virgin earth, and one-third sand; in which sow them about a quarter of an inch deep. The young seedlings must be defended from the extreme cold of winter, watered and shaded in the dry and excessively hot intervals of the summer season.

2 *Cephalanthus Occidentalis*, American Button tree
3 *Cytisus*
4 *Tamarix*, comprehending the Gallica or French Tamarisk

TABLE IV. *Hardy Evergreen under Shrubs.*

1 *Artemisia abrotanum*, Southernwood
2 *Astragalus*, Shrubby Milk vetch
3 *Buxus*, including the dwarf-box

4 *Empetrum*, The berry-bearing heath
5 *Epigæa*, Trailing Arbutus
6 *Erica*, Heath
7 *Euphorbia*, Wood Spurge
8 *Hyssopus*, Hyssop
9 *Lavandula*, Lavender
10 *Salvia*, Sage
11 *Satureja*, Savory
12 *Teucrium*, Germander; including the shrubby Spanish
13 *Thymus*, Thyme
14 *Ulex*, Furze, Whin, or Gorse
15 *Vinca*, Periwinkle
16 *Viscum*, Misseltoe; a parasitical plant
17 *Yucca*, Adam's Needle; very curious in its growth.

2.—*Methods of Propagation.*

Except a peculiar mode of cultivation is directed in the preceding tables, under some of the species and varieties, not here particularized, the shrubs and low trees above enumerated, may be successfully propagated and raised, by the respective methods, which will be found detailed in the department of the NURSERY, in their respective places, viz:—*By Seed, by Layers, by Cuttings, by Suckers, by Grafting, by Budding.*

With respect to American plants, however, as many of them require a peat soil, and some other peculiarities of treatment, it may be proper to describe the essential things to be attended to in cultivating them; in the first place, a moist soil; secondly, shade; thirdly, frequent waterings.

3.—*Mode and Time of Planting.*

In marking out tracts of ground to receive shrubs, and the distances they are to stand, regard should be had to the heights and modes of growth of different sorts, and even to the gradations of colour in the tints of the leaves. It may suffice to give a simple rule, necessary to be observed, in order that the plants may grow vigorously, by receiving the utmost benefit from the free access of the air, and the rays of the sun. The loftier the shrub, the more backward should its situation be in the border or clump, while by keeping those with low heads in front, each kind will be conspicuous.

The distance between the plants should be controlled, not only by their general height, but by the direction of their branches; those which shoot horizontally,

require an additional space to expand, so that the branches of one may not interfere with those of the other. In clumps or connected plantations, the smallest in the front may be from three to five feet apart, and the intervals between the plants behind, may increase as they rise in height, and recede in situation.

Further, by allowing a due distance between plant and plant, you have proper room to dig the ground, to hoe between the shrubs, and to do away every thing else relating to their culture.

When it is desirable to hide the face of any rugged wall, or unsightly building with evergreens, plants of the Phillyrea, Laurel, Laurustinus, Pyracantha, or other suitable sorts full of trailing branches, and close in the foliage, should be disposed near to the subject, three or four feet asunder, and their branches trained to it, in the manner of wall trees. The four sorts named, are of quick growth, and the beautiful verdure of their leaves will effectually cover the surface intended to be concealed.

In the narrow borders of a flower garden, the shrubs introduced should not generally be nearer together, than five or six feet, except such as are designed for edging, and those in the herbary; but their distribution must vary with the ground, and the design of the planter. The best shrubs for diversifying flower borders, are those of the moderate growth, such as the rose, syringa, jasmine, honeysuckle, spiræa, althea, cytisus, hypericum, guelder rose, dwarf almond, double flowering peach, laurustinus, arbutus, mezereon, cistus, rhododendron, &c.

Some of the more ornamental sorts, to be the better disposable, may be planted in pots.

3.—*Preparation of the Ground.*

If you have any vacant piece of ground, designed to receive plants from the nursery, you may begin in August to prepare it, that it may be in readiness, when the season arrives.

August is a good time to begin this work, unless a continuance of very dry weather should have made the ground too hard.

When the surface has been dug over, let it be trenched or laid up in ridges, in order that it may be meliorated by the rains, sun, and dew, and by the frost, if it lie till winter, after which it will only require to be levelled, in order to receive the plants.

In November, December, and January, a similar course should be taken with ground, designed for a new plantation in the following spring.

Unless the soil is poor, or exhausted by a previous plantation, manure may not be necessary. When dung is incorporated with the soil for trees, it should be only the well reduced dung from an old heap. Fresh loam is better applied to the roots of woody plants, than undigested litter. Having wheeled in the recruiting matter, spread it equally over the surface, three inches thick or more ; after which, let it be regularly trenched in, one spade deep.

From August to January, is likewise a good time to get fresh earth from heaths, commons, and peat bogs, for curious exotic plants. To prepare this earth, lay it in ridges, and let it be occasionally broken and turned in frosty weather.

4.—*Packing up Plants to be sent to a distance.*

In order to convey curious shrubs to a considerable distance without damage, great care in packing them is necessary. Tie them in bundles, and protect the roots by a good wrapping of straw ; then let every bundle be packed up in mats.

5.—*Process in Planting.*

Dig a round cavity for each plant, capacious enough to hold the roots freely, from half a yard, to a yard across, and a spade or more in depth, and let the bottom be well loosened.

Having the plants at hand, prune the ends of long and straggling roots, and cut away such parts as are decayed or broken ; also prune off strong lateral shoots, springing low on the stem, and reduce any irregularity in the head. Large and spreading heads,

in the deciduous kinds in particular, may be safely pruned at planting, so as to have some kind of symmetry between the size of the stem, and the compass of the roots. In planting evergreens, however, at any time, while very cold weather may prevail, clipping the shoots or leaves should be avoided, as the sudden exposure to frost, immediately afterwards, would turn the foliage, in patches, to a rusty unsightly colour.

Then set the plant upright in the hole; break the excavated mould fine, lay some of it among the fibres of the roots, and throw the rest in equally, shaking the plant gently, as the earth is filled in, to settle it between the fibres. When all is covered, tread the earth gently round the stem. Make the top of the earth a little hollow round each shrub, especially in spring planting, in order to hold the water, which is given in dry weather.

Fix stakes to such tall plants, as require support; having twisted a band of hay round the stem, to prevent its being galled, if agitated by the wind, tie the stem neatly to the stake. It is important that this precaution should not be omitted, because, if a violent wind should disturb the roots, it will retard the plant in making new fibres.

In the number on the times of planting, it has been already recommended, to mulch the stems of tender plants, in order to protect the roots from the frost in winter, and from drying winds in spring. Delicate and curious sorts, planted when severe frosts may follow, should be covered also with an arch of mats; such as the China rose, and young plants of the arbutus, azalea, cypress, kalmia, magnolia, and rhododendron.

6.—*Planting Box Edgings.*

Procure short bushy box, divide the plants into rooted slips, prune away the long woody roots; or if such cannot be procured, begin a plantation for the succeeding year, by setting suitable cuttings in rows about one foot apart, in a shady border, and are either planted in spring or autumn; they must be left one year in this nursery, and many of them will have taken root, particularly if they have been watered in dry

weather. Those which decay, should be pulled out. Keep them clear of weeds.

At the time of planting the box, prepare the edge of the border, then stretch a line along it, to mark the direction of a small trench; tread that part lightly, in order to settle it, and with the spade make it completely even with the string. On the verge of the line next the alley, cut a small neat trench, about six inches deep, making the side next the string quite upright, turning out the earth towards the walk.

Set the plants in the trench, just so thick that the roots may touch one another, the tops of the plants even, about an inch above the surface; as you proceed, keep the plants from falling out of position, by drawing the earth up to the stems. When all the row is set, turn in the mould with the spade, almost to the top of the plants, and tread it nearly level. Reduce any irregularities in the top, with a pair of garden shears.

7.—*Fine Dressings for Borders, &c.*

1. *Vegetable mould* may be mentioned in the first place, though it is too choice to be applied to the raising of common plants.

Making of vegetable mould.—The substance of decayed leaves is one of the richest kinds of mould, and nothing is more generally fit to be applied in composts and dressings.

Begin in November to collect the leaves. Such as are intended to be rotted, without being intermediately used in hot-beds, may be taken of promiscuous sorts, and raked together, in a wet state, in preference to dry. Throw them in a heap out of doors, with a little earth and lime over them; the one will keep them from being blown about, and the other will accelerate the rotting. Let them lie till April; then turn them completely, and afterwards very frequently. They will thus be sufficiently reduced in a single year. But those which are prepared for a hot-bed, by the treatment there given, will not be fit for use, till the end of the second year.

2. *Fresh mould* may be brought to recruit exhausted borders.

3. *Scrapings of roads*, not clayey; those from high roads, are enriched in far the greatest degree, by the droppings of cattle. It should be observed, that the gravel, slate, or stone, which is ground into earth, on the surface of a road, is necessarily *virgin earth*, having never been in a state to support vegetation.

4. *Decayed tan-bark*, which has been used in a forcing pit, and reduced to an earthy state.

5. *Dung*, which has been employed in hot-beds, or by any means rotted, without bearing a crop.

6. Drift sand. 7. Coal ashes. 8. Soot.

The three last will be proper only for soils, that require to be made light, or where it is cold or wet, to have these faults corrected.

8.—*Winter Dressing—Spring Culture.*

Shrubbery borders should be manured once in two or three years; February is a suitable month to do it in. Vegetable mould, prepared as directed in No. 1, of last article, or very rotten dung, are the best manures for shrubs. Wheel it to the sides of the borders, with a shovel cast it about the plants, and dig it among the roots, leaving the surface neat and uniform.

In February, finish the winter pruning of deciduous shrubs, and begin to prune such evergreens as want it. This pruning should be done in general with a knife, and not with garden shears. Cut out all decayed wood, also the straggling and superfluous shoots, as well as such which are too crowded, that the sun and air may have their due influence. Some kinds, if not regulated, would run too high, and grow unsightly; therefore, when a plant is in that state, cut out some of the tallest branches, for the shoots of one tree should not interfere with those of another, except in a wilderness. After the pruning, clear away the litter, and tie up such as require it. Take up from the shrubs, all suckers, which have grown about the roots, and dig the ground neatly between them. Where the flowering shrubs are so far separated from each other, that the intervals are open to the eye, the ground should look fresh and neat, but for the interior

shrubs in a close thicket, very little cultural attendance will suffice.

Do not delay beyond March to dig the ornamental borders, if this work was not done before; clear away all decayed leaves and rubbish. As the weeds begin to spring, destroy them with the hoe and rake, in dry days. It will be well to finish the general pruning by the end of March, leaving, for a few days longer, only those plants, adverted to in the next paragraph.

Let all the rose trees in pots, be pruned about the beginning of April. After pruning, loosen the earth, take it off as low as the roots, and replace it with fresh rich mould. All kinds of potted shrubs should be pruned, in this stage of spring, of dead unsightly branches, have the top mould removed, and rich fresh mould or compost placed in its stead. The rose tree, and other shrubs in pots, must be well supplied with water. Young trees and shrubs, which have been planted in the spring, in the full ground, will thrive better for being watered once or twice a week, in dry weather. Such, however, as were planted in autumn, or very early in spring, will not yet require much watering.

9.—*Summer Culture.*

As weeds will spring up abundantly in May, great activity must be used to eradicate them, while young; hoe them in dry days, rake the weeds and other litter from the borders, as much labour is saved by destroying them while young, and the ground is prevented from being exhausted.

In May, to improve the appearance of the garden, take away the mulch from the stems of the tender shrubs, and substitute moss, to prevent the sun from drying the earth too fast about their roots. Where box edgings have grown irregularly, clip them; these look best, when the upper part diminishes in breadth; take particular care to have the shears in order.

As the heat increases, it will become necessary, whenever several days pass over without a copious shower, to keep the trees and shrubs well supplied

with water, or there will be a risk of losing many of them.

In June, examine the earth of shrubs in pots, if it begin to bind, loosen it to a little depth, which will promote the growth of the plants.

Exterminate all weeds as they appear.

Look over the ornamental shrubs, and let any strong remarkably irregular shoot, be either shortened into order or cut out. The branches of different shrubs, ought to be kept from interfering and spreading, so as to injure lower growing plants.

The shrubs in pots will require water, in the extreme drought of summer, at least three times a week; such as were planted the preceding spring, in the full ground, will answer to be watered occasionally.

Climbing shrubs, which have formed flower heads, ready for full blowing, should have any luxuriant shoots, which appear above the heads, retrenched.

To keep garden hedges in handsome order through the summer, they should be clipped in the beginning of June and August, and edgings of box, which want clipping, should not be neglected. For cutting evergreens in summer, choose a moist time, as when cut in a dry hot season, they are apt to take a brown hue.

If, out of a number of rose trees, some may be prevented from blowing, without causing a deficiency, head down a few in time, and you may expect them to blow in autumn.

In July and August, fail not to give water, as the circumstances of the weather require, nor to eradicate weeds as they arise.

Go over the shrubbery compartments; if the branches of any plants are leaning down, either tie them up, or cut them away. Trim into order, such as have grown rude, or too luxuriant, employing the knife to reduce them.

9.—*Autumn Dressing, and Winter Pruning of Deciduous Trees.*

Be careful to have the borders thoroughly cleaned from weeds, before the dry warm weather is succeeded by heavy rains.

Dwarf box, and all hedges may be clipped in September. If box receives its last trimming early in autumn, it has time to recover before winter. The clipping of hedges should be finished before the shoots get too hard. Do not cut young hedges too close down.

Where edgings of box have grown too thick, and out of shape, they ought to be taken up and re-planted, either at the end of September, or early in October, waiting for moist weather. The other times for planting, have been mentioned before.

Continue giving water at intervals, in dry weather, to all shrubs in pots.

Tie up to stakes such shrubs as are likely to be broken down by heavy rains, or high winds.

About the end of September, begin to remove into sheltered situations, the trees and shrubs in pots, both those that are more curious and delicate, and those particularly that are very young and tender. The mould, in the pots of choice roses, may be enriched with dung water.

The heads of ornamental shrubs, require a regulating pruning every year, with the *knife*. If you defer the principal dressing till the spring, take off, meanwhile, very straggling shoots, to keep them somewhat regular. October is the most suitable time to prune the rose and honey suckle. When the leaves of a tree fall, the opportunity for pruning it begins; and although evergreens do not afford this criterion, if you mean to prune them before spring, it is material not to delay this work, till after the leaves of other trees fall; for, as an evergreen, the growth of the herb is not suspended during winter, if a severe frost occurs soon after you have cut it, the fo-

liage is apt to take a rusty, brown, unpleasant hue, which will last till spring.

Many flowering shrubs will show, in October, some excessively long rambling branches, the growth of the preceding summer; cut out all such as are irregular, unsightly, and superfluous. Endeavour to prune close to a bud, or lateral young shoot, leaving the bud, or shoot, for a leader, head down those sorts that require it, forming them into handsome bushes, not interfering with each other. All suckers from the roots should be eradicated; and many shrubs should be kept trained, with a single stem, to some height, from the ground, especially such beautiful plants, as the arbutus, where they stand detached. Evergreens require different degrees of management, particularly where rude shoots protrude beyond the general head of the branches. The knife should touch an ornamental shrub, no farther, than to improve its beauty. The pyracantha, when showing its brilliant clusters of berries, and the arbutus, with its fine blossoms, and red fruit, are not to be mutilated, by the periodical pruner.

After clearing away the cuttings and other litter, dig the ground a spade deep, between such plants as stand wide; in digging, prune off very long straggling roots. Have recourse to the hoe where the spade cannot be used. When a compartment is dug, or hoed, rake the surface smooth.

The dressing by pruning, and digging may be continued during November and December; but a free use of the knife, in the confirmed winter season, is not so eligible, to evergreens, as to trees that have nothing of the herb unfolded. The spade employed about either, will destroy all remaining weeds, and encourage the plants.

Several sorts will require support, against the force of the wind; let the stakes be hid as much as possible by the shrubs.

Curious plants, in pots, not before removed, should be treated with a requisite degree of care; some may be

plunged into the ground, the better to guard their roots from frost; the more tender, should be placed under frames.

During the severity of winter, the China rose, and other delicate sorts, planted in the full ground, should be mulched about the roots, and protected, by an arch of mats, or other temporary shelter, especially if there should be a severe frost, without a deep covering of snow.

The middle and close of winter is also a fit interval, for manuring such parts of the shrubbery ground, as required to be thus renewed.

10.—*Saving Seed.*

In the course of October, gather the seeds of such kinds of flowering shrubs, and trees, as are now ripe.

11.—*Forcing Roses, and other small flowering Shrubs.*

In order to prepare, for forcing, an early bloom of roses, procure good loamy earth, from some of the cultivated grounds, let some thoroughly rotted dung, be well mixed therewith, when it is so incorporated, as to appear of one colour, it will be fit for use. With this compost, have also ready, pots of a good size. Take up, from the open beds, some strong plants; the Provence is a good species to force, or any exotick from the south of Europe; prune any straggling shoots, and trim the roots moderately, lay a little mould at the bottom of the pots. Hold a plant upright in one of these, while you fill up with mould, taking care to let it fall in between the roots. It is well to cultivate select shrubs, a year in pots, before you introduce them into the house; but if wanted they may be forced the subsequent spring. The shoots of roses, intended to be forced, must not be shortened in the autumn pruning.

There is no certainty of obtaining a fine blow of roses, in the depth of winter, by the most expensive arts of forcing; and yet fine flowers may be produced, early in the spring, by any ordinary stove set into operation the be-

ginning of December, and either with, or without, a bottom heat. When the potted plants are first introduced, keep the air of the house at about 55 degrees, never letting it fluctuate to more than two or three degrees above or below. In the second week, aim at 60° as the standard; in the third week, at 65°. When a month has nearly elapsed, begin to increase the heat gradually to 70°; having brought it to this standard, afterwards rather let it exceed it, from three to five degrees, than sink below. Water the mould in the pots when requisite. To keep the plants clean, sprinkle them with water warmed to about sixty degrees, and let the water be given a little before noon; but, after they show flower buds, it is not advisable to do this, unless the sun shine with force. To have a succession, new sets should be introduced, one week after another.

By similar management, having prepared plants in pots, or boxes, other small flowering shrubs may easily be forced, such as the syringa, hypericum, honey-suckle, and Persian lilac.

12.—*Chinese method of Propagating Trees.*

A method of propagating trees, very different from any of those, which have been described, in the *Nursery*, is practised with success by the Chinese. It must be left to further experiment, to decide how far their device, as described below, deserves to be adopted by practical gardeners in Europe, or America.

In the spring, when the buds begin to swell, the operation is commenced. A proper branch is selected; and, beginning on the upper side of this, at the distance of six inches, or a foot, from the trunk of the tree, a portion of the bark is removed by transverse parallel cuts, about an inch apart, carried on in the direction of a belt, but not continued till the ends meet; for a small neck, or cause-way of bark, must be left, or the conveyance of sap, through the bark, would cease. The cause-way of bark, may be one eighth of the circumference of the

branch or less, if the branch exceed an inch in diameter. The ends of the disembarked part should be contracted and rounded. The bark is to be cut away *down to the wood;* the part is then encompassed by a composition made of clay and earth, with which some straw or hay has been incorporated, similar to that used by bricklayers for clay walls, but it ought not to be too tenacious. The magnitude of the ball thus made, should be proportioned to that of the branch operated upon, and may vary from the size of a small, to that of a large melon. This is to be encompassed and secured by a bandage of hay or straw, over which some of the same composition should be spread. A proper vessel is then to be fixed over this ball, for the purpose of being constantly filled with water, and adjusted to drop its contents very slowly on the ball, two or three drops an hour, in order to preserve a constant moisture in it, till the operation is completed. Such new roots, as issue from the upper lip of the divided bark, will be seen in the autumn ramifying in the external surface of the ball. Remove the branch from the parent tree, at the proper season for planting, that is, in the month of September, as the exposure of it to the constant dropping of water, would be pernicious, when the water turns cold. Let the detached branch be placed in the ground, without breaking the ball.

At Howstead, near Bury, Great Britain, the Chinese process was tried on a green gage stock, of several years growth; the branch with its incipient roots, being removed, became a healthy and flourishing young plant.

This method has been introduced into the gardens at Calcutta. A professional gardener, well acquainted with the modern practice, and with the exotick devices, which travellers of observation, with a zeal for gardening, have offered as improvements, is of opinion, that this method is best adapted to a HOT CLIMATE. In 1803, he tried this method on a green-house shrub with success. Sometime afterwards he made a second experiment, with which, by an addition of his own, he blended some-

thing of the common method of laying. Having chosen a flexible branch to operate upon, he laid down the part disbarked, covered with the bandage, into a pot of mould, just upon the surface, that the roots might pierce the composition, and strike into the mould, before the branch was detached; this experiment also succeeded.

An experiment of a similar kind has also been successful; which is, to procure from the potters, a suitable garden pot, cut directly in half through the top and bottom, in a perpendicular section, and so baked, that it may fit close when prepared. As soon as this pot is perfected, select a suitable bearing branch of a tree, in any part where a stage can conveniently be fixed, trim off all the shoots (if there are any) which would be within the height of the pot, leaving also a small stem above the pot, suited to the head you intend to have, as this method is peculiarly appropriated to dwarfs, and will answer for cherries, better than any other trees; enclose the branch selected between the two sections of the pot, tying it firmly in its place, having previous to this, cut through the bark, in two or three places, only a small part round the branch, or you may make the cut agreeably to the Chinese method, so as to be placed at about half the depth of the pot; after progressing thus far, fill the pot with good, light, rich earth, and support it well, by fastening it to stakes, fixed to the frame made under the tree for this purpose. The time for making this experiment, is when the fruit is ripe, all of which must be taken from the branch at the time; this being performed, give it frequent waterings; it will shortly take root, and may be cut off immediately after the fall of the leaf and removed. Cherries, treated in this way, answer well for forcing, as the shrubs are small.

***The remarks in No. 11, belong particularly to the Nursery; but as they are more curious than useful, they were placed in the account of the ornamental department of gardening.

PLEASURE GROUND.

1.—*General Observations.*

A PLEASURE GROUND is an extensive garden, laid out in a liberal taste, and embellished according to nature, where both nature and art are so united, as to form one grand scene, in which it may be even difficult to distinguish, where nature has left her portion of the work unfinished, and where the refined taste of the designer has been indulged in introducing the varied embellishments: every mind concurs at first view, of such a delightful landscape, in associating the idea of a garden with a seat of happiness; and when the romantick illusions are dissolved, the beauties of the place afford the purest gratifications.

The business of the improver of Pleasure Grounds, must combine a *refined taste*, or *design*, and *ground plan*. The field on which he is to show his *taste* or *design*, is a portion of ground either with or without natural water; but no landscape can be complete without water, which produces more numerous effects, as an ornamental object in scenery, than can be easily analyzed or accounted for.

It may with propriety be asserted, that every attempt to convey this *taste* or *design*, except merely intimating the materials, with which the designer is to perform his operations, will not afford him that assistance, he may derive from beholding the most approved pleasure grounds, which have been already laid out by some eminent artist. The materials necessary for him to perfect his plan, are,

1. *Ornamental Vegetables*, of which the culture is described in the *Flower Garden*, the *Shrubbery*, and the *Nursery;* admitting a few from the *Kitchen Garden*, which may be picturesque, as the *Momordica*, *Palma Christi*, &c. and many from the *Fruit Garden*, yet so as to avoid the appearance of a common orchard. Of vegetating ornaments, there remains only to give, in this division, the method of laying down grass—see No. 4, Pleasure Ground.

2. *Gravel* is the most suitable material for walks: the method of employing this, is described in No. 3, of this division.

3. *Water.* The introduction of this, must be left to the designer, as the beauties it displays, when judiciously managed, increase the other charms of the scenery of the pleasure ground.

2.—*Edgings of Borders.*

Edgings of Borders.—In the pleasure ground, greater variety in the edgings of the borders, is requisite, than in the flower garden. Although box (the method of planting which is described under Shrubbery) is superiour to every thing for borders, where regularity is allowed, yet in extensive pleasure grounds, the edgings should be diversified by other dwarf plants, forming distinct lines. Thrift is the neatest small evergreen, next to box. In other parts, the daisy, pink, London pride, primrose, violet, periwinkle, &c. may be employed as edgings. The strawberry, with the runners taken off close during summer, will also have a good effect. The wood-strawberry is suitable under the spreading shade of trees. The limits between the gravel walks and dug work, may sometimes be marked by running verges of grass, kept close and neat.

3.—*Gravel Walks.*

In all work to be performed on gravel walks, wait for dry weather. March, April, or May, are suitable times

to form them. Let the spaces marked for the walks, be excavated, so as to admit about five inches of dry, coarse, hard materials, such as stones, &c. as a foundation, and on the top of this, five inches also of gravel.

As to the quality of the gravel, that kind of pit gravel, which consists of the finest coloured pebbles, mixed with a dry sandy loam, is preferable. Some places afford gravel, consisting almost entirely of pebbles, without any natural mixture of binding particles, in which case, it is proper to add a small portion of light, loose, sandy loam, or any similar dry material, that will bind tolerably firm. For considerable walks, it is not necessary to screen the gravel very fine; it will be sufficient to separate the small and middling sized pebbles, by raking them out, or drawing them to the bottom.

Having prepared the excavation ten inches deep or more, lay the bottom with stone, fragments of lime and bricks, or other rough dry rubbish. This, laid four or five inches thick, prevents worm cast on the walks, promotes the draining of water from the surface, and checks the rising of damp from below. On this foundation, spread the proper gravel from four to six inches in depth, to admit of re-laying or turning every year, or every alternate year, in the spring. In laying the gravel, to prevent the lodgement of water, finish the surface to a gradual swell in the centre; allow the rise to be three inches in a walk six feet wide, five inches in one twelve feet, and eight inches in one of twenty-four feet, diminishing the proportionate elevation in walks still wider. Avoid an abrupt rise, the sweep should be the segment of a circle. To lay gravel in a good style, the co-operation of two or three men is necessary. As you proceed, tread the work evenly, every fifteen or twenty feet, and finish it off smooth with a light rake, teeth and back occasionally; then roll the surface regularly with an iron or stone roller, the iron roller is preferable. When a walk is finished, give a good general rolling three times along its whole length, to make it thoroughly firm and even.

When there is a deficiency of gravel, sand of a binding nature, such as drift sand, is occasionally used to form walks in the less conspicuous parts of the garden: it binds more effectually, when not laid very thick. The scrapings of a turnpike road, having laid long enough to be thoroughly dry, are often adopted as a substitute, which makes a firm neat walk.

New walks should be frequently rolled, and walks that are perfectly settled, require a routine of attendance, to keep them in a commodious and ornamental state.

Rolling, besides rendering a walk firm, in some degree prevents the growth of moss and weeds, and should be repeated at least once a week in dry weather, in spring and autumn, and generally twice a week in summer, where gardens are kept in the highest order. After showers, waiting till the surface be dry, occasional heavy rollings will make the walks firm, dense, and smooth. In winter, the weather, which is not often open and dry at the same time, will only admit the roller to be used occasionally with good effect.

At different seasons, as weeds and moss prevail, they should be picked out. Moss begins to spread abundantly in autumn, and should be destroyed by hand, or checked by the roller. Other weeds begin to spring rankly about May, and much care through the summer will be requisite to keep them under. Loose litter should at all times be swept from the walks.

Once a year or every alternate year, as the surface becomes dirty or foul with weeds, it will be proper to turn gravel walks. March, April, or May is a good time to do this. Prepare by trimming the edgings, and by dressing the beds, where there is dug work adjoining. Grass edgings should be cut neatly with an edging iron. If the surface of the walk be very hard, loosen it with a pick axe; then dig the walk with a spade, in a slanting direction, just deep enough to change the surface, turning every flake of gravel neatly over. This will destroy

the moss and weeds; then tread and finish the surface, as before directed, for the first forming a walk.

This turning, in the spring, will be quite sufficient, without deforming a garden, by ridging up the walks in winter, and leaving them in that state two or three months, a practice which makes ornamental grounds nearly useless in the winter season.

4.—*Laying down Turf for Grass Walks, &c.*

Grass walks, distinct from lawns, are sometimes adopted either for variety, or from a deficiency of gravel: in the latter case, the turf is laid over sand, or some other material, that cannot be made to bind; these are not eligible for general walks, as they are not always in proper order for walking on, especially when wet or damp; besides, if much used, they are liable to become bare and unsightly; so that gravel walks, which can be kept in order at all seasons, are greatly to be preferred, for connecting all the main points of communication; while stripes of lawn are agreeable enough occasionally to be traversed in dry weather.

Lawns and patches of lawn may be quickly formed, by laying the ground with turf; or such tracts, as are too extensive for turfing, may be sown with grass seeds.

Prepare the piece of ground, marked out for a lawn, by levelling all inequalities, so that if there be any natural slopes, swells, or dips in the surface, the undulations may be gentle, and insensibly slide into the principal level. The characteristick beauty of a lawn is smoothness, and if the turns in the ground diverge much from the horizontal line, the work, necessary to give a suitable face to the sward, cannot be performed. Having arranged the ground work of the intended lawn, tread the earth, to keep it from settling unequally, after which dress the surface with the hoe and rake. If the land is not poor, it would be well to have two or three inches poor mould at top, that the grass may not grow rank; a

poor soil conducing to give green sward a velvety appearance.

Turf may be laid almost any time in open weather, from September to May, but some of the intervening months are preferable. January, when mild, is a good time. February is highly eligible, for turf will then grow freely; so it will in March, if it be laid down soon after it is cut. The care to be taken of it, increases, as the year advances into April and May. If laid so late as May, it must be well watered, should it be dry weather. The finest turf is to be found on commons.

The turf should be cut out in pieces of one size, generally about a yard long, a foot wide, and an inch thick. Get a well constructed turfing iron, and as the pieces are cut out, roll them up compactly, the grass side inwards. As soon as the turf is laid, let it be well beaten, with a flat wooden beater, then go over it with a heavy roller, to press it well, close down and even.

When turf cannot be procured in sufficient quantity, the intended lawn may be sown with grass seeds, saved from some of the finest clean hay; or white clover seed, which is far superior to any other, may be purchased for the purpose. The most eligible times for sowing, are autumn, not later than September, and spring, March and April. Sow it thick and regular, and rake in the seed evenly. Wait for a dry day, and till the surface be dry, then run it over with a lightish wooden roller, to smooth and settle the surface close over the seed; repeat this occasionally.

To preserve tracts of lawn in a beautiful order, they must be frequently rolled, to keep the ground even; mown close to make the grass smooth, and rich to the eye, without being rank; swept, to clear them of worm-cast; also swept to clear away litter; and trimmed at proper seasons with an edging iron, to make the edges next the walks and borders even.

The large stone or iron roller, to keep the surface smooth, must be used, at times, all the year, even in win-

ter, when the weather is dry and open. From March to September, it is proper to roll the sward after showers. Rolling, which, when performed a day or two before mowing, makes it easier to mow the grass with exactness, should be repeated, during the mowing season, sometimes as often as every week, and never less than once in three weeks. Begin to mow in February; if the grass be suffered to get too long, it will not look handsome, till after two or three mowings; be careful to cut it close and even. From February to April, once in three weeks may suffice. In April, the grass will begin to grow apace, and the frequent use of the scythe after the roller, is necessary to make a fine sward, and prevent worm-cast. Begin mowing early in dewy mornings, or take advantage of moist weather; for short grass in lawns, when dried by the sun, can scarcely be mown even. From May to September, mow once a week, when the weather is showery, and about every fortnight, during dry periods. In October, mow with exactness, to have a close regular bottom against winter, as it may be expected to be the last mowing for the season; but if November should happen to be mild, a final mowing may then be requisite. After mowing, let the grass be invariably swept up clean and carried away. When worm-cast begins to disfigure the lawn, either sweep it off, or to remove it, first break and scatter it about with a pliable ash or hazel rod, and then, before the scattered worm-cast is too dry, run over the lawn with a wooden roller, by adhering to which, the lumps of earth will be carried off the short grass. Occasions for this will generally occur every month from March to December. In November, the lawn will require to be cleared of fallen leaves. The margins of the sward, in contact with ornamental walks and borders, should be trimmed with an edging iron, about four times a year, February, April, June, or July, and in the general autumn dressing.

5.—*Making Excavations water tight.*

If the supply of water, brought in to ornament the

grounds, is not sufficiently copious to answer for the ordinary waste, from oozing through the pores of the earth, let the bottom and sides of the excavated channel or basin be well rammed with clay, eight inches thick at least, in order to retain the water; and coarse gravel should be spread over the clay three inches thick or more, as well to preserve the claying, as to render the water clear.

FLOWER GARDEN,

FOR

JANUARY.

1.—*General Observations.*

The lines of distinction between the Flower Garden, the Shrubbery, and the Pleasure Ground, when the design is neatly arranged, and well executed, can neither be positively marked, nor constantly observed, in treating the subjects, which may seem more properly to fall under one of these heads, than under either of the others. The flowering shrubs connect the two former. For instance, can there be such an exact partition between the flower garden and the shrubbery, as would destroy their communication, while the plant, which bears the beautiful rose, belongs, in a catalogue of names, to the latter department? Or can we prevent the pleasure ground, from running into the flower garden and shrubbery? so as scarcely to know where one begins, and the other ends, so long as a pleasure ground, with the most happy diversity of lawns, wood, and water, would be incomplete without flowers and shrubs.

Between the two former, the difference consists in the proportion, in which the two classes are cultivated, hence where a great preponderance of plants without woody stems, display their bloom, the characteristicks of a flow-

er garden seen obvious enough. If another spot is almost covered with clumps of shrubs, and merely dotted with a few creeping flowers, it will be termed, without hesitation, a shrubbery.

The most essential point of separation, between a flower garden and a pleasure ground, turns on the extent of the place so occupied. Hence, as the surface to be dressed for pleasure, widens, plats of grass are interposed, clumps of shrubs, &c.; and if the limits of the ground are yet farther removed, pastured lawns, and groves of forest trees, evince that utility and beauty of effect may harmonize.

Although even a small piece of ground cannot be tastefully adorned, without an intermixture of flowering shrubs, some in the same beds with the more showy herbaceous flowers, and others in small clumps of varied proportions, yet it is requisite to confine whatever relates to the planting of shrubs, to a separate article; as they require a coarser culture, exclusively adapted to their distinct nature. Hence, while general observations on the introduction of that class of plants, occur in the flower garden, every technical particular, respecting them, must be sought in the shrubbery or nursery.

2.—*Soil, Situation, and Ground Plan.*

Most of the hardy herbaceous flowers, and the deciduous and evergreen ornamental shrubs, will succeed in a soil of common good qualities, moderately light and mellow. Negatively the ground should not be excessively strong and clayey, and mere gravel is very intractable, nor should the situation be so low, as to be damp and wet. The surface may be level, but if very unequal, should be so arranged, as to make the inclinations gentle. With regard to the form, either a square, or an oblong ground plan, is eligible; and although the shape must be often adapted to local circumstances, yet when a garden is circumscribed so that the eye at once embraces the whole, it is desirable that it should be of some regular figure.

3.—*Fences.*

The flower garden, which is not designed as an appendage to ornamented or pleasure ground, will require a fence, whenever the domestic buildings do not serve as a boundary for the enclosure; a wall or close paling is to be preferred on the north side, both to serve as a screen, and afford a warm internal face, for training fruit trees, or recourse may be had to a good hedge fence, either planted on a bank, and defended by an outward ditch or a ground hedge. The best outer hedge fence may be formed out of white thorn or holly.

For internal fences to afford shade or shelter, to particular compartments, yew, holly, laurel, and some of the other evergreens, are occasionally used. In the middle states the privet would form a neat close hedge, were it not frequently subject to be destroyed in winter.

4.—*Stile of laying out a flower department.*

This may vary, with the quantity of surface, and the object of the cultivator. In the first place, carry a border round the garden, no where narrower than three or four feet, except it may be proper to contract its breadth, under the windows of the house; or unless there be a green hedge, on any side, rooted in the level of the garden, which might be expected either to draw the earth, or to encroach on the small plants, in which case flowering shrubs, in little slips of moulds would do better than dwarf stem flowers. In contact with the surrounding border, may be either a grass plat, or a gravel walk; the latter is most convenient for approach at all seasons. If the ground be at all dilated, handsome walks, crossing or leading to the centre, will also be requisite; let the principal walks be five or six feet in width. The interior of the garden is usually laid out in oblong beds, three or four feet wide, with alleys from twelve to eighteen inches. The alleys, as well as the main walks, should be laid with gravel, or some dry binding materials, and the beds

edged with box. Keep the edgings neat and regular, about two inches in height and breadth, by clipping them once or twice a year, in the interval from April to September.

As the beauties of a flower can only be discerned on a near view, the more concentrated the beds are, in relation to the house, and the easier the approach, the greater will be the entertainment, derived from those plants, which in the mode of germination, foliation, coming into flower, or showing or maturing fruit, or seed vessels, offer subjects for curious observation.

A free interspersion of ornamental shrubs will afford variety, and have an agreeable effect.

For the regular beds of a flower department, choice and curious species should be chiefly selected, comprehending prime varieties of the tulip, hyacinth, jonquil, the polyanthus, narcissus, and esteemed kinds of the narcissus, the fritillaria, crown imperial, bulbous iris, amarillis, ranunculus anemonies, with such other BULBOUS and TUBEROUS ROOTED FLOWERS, as are chiefly prized; likewise of the FIBROUS ROOTED TRIBES, admit the capital sorts of the auriculas, polyanthus, carnation, and pink, with the beautiful, among the other kinds, enumerated in the respective tables of that class, *Annuals*, *Biennials*, and *Perennials*.

5.—*Herbaceous Flowering Plants.*

Of the numerous nation of flowering plants, we have at present only to treat of the herbaceous tribes, or plants of an herb-like nature, differing from the woody kinds in producing soft stems, which decay annually after having borne the flower. The annuals die wholly, stem and root, the same year they are raised. The biennials mostly decay in the stem the first year; they emit a new stem the subsequent spring, and perish altogether the second year. The perennials are renewed, in successive young stems, by the vigor of the durable root, for many years. Very few of the biennials or perennials retain their stems over the first year; on the contrary, the woody plants of

various species of the shrub and tree, are constituted to be permanent in the root, stem, and branches, and subsist, increasing in size, for a series of years, and those of the strongest stamina, such as the oak and chesnut, endure for centuries.

Another point of difference between the herbaceous, and the woody stemmed flowering plants, is the general inferiour stature and compass of the former; but this ground of distinction is not constant and specifick; for the tallest herbaceous flower surpasses in size the lowest tree. The durability of the stem is the true criteron of a separate nature.

The herbaceous flowering plants are divided into the *fibrous rooted*, *the bulbous*, with the *tuberous rooted;* the former are divided into annuals, *biennials*, and *perennials;* the latter form only a distinct class of perennials.

In conformity with this classification, we proceed first to the description of

6.—*Annual Flowers.*

These fading chaplets of the year, are sown, come into flower, and die within the space of nine months; they must be re-produced from seed, at the anniversary of the sowing season. The seed is generally put into the ground in spring, and proportionally later for successions within the year. Some of these beautiful ornaments of the garden flourish but two or three months, and pass away before the summer; and those of the strongest stamina, do not last beyond autumn. The times of sowing the different kinds, which may be extended from February to June, or later, will be hereafter specified. If their periodical decay require the process for raising them, to be constantly repeated, they are attended with the peculiar advantage, of flowering the same year.

As the annuals are of different temperaments, they are divided into *hardy*, *half-hardy*, and *tender*.

The *hardy* are sown and raised in the natural ground; the *half-hardy*, or comparatively tender, are sown in a temporary hot bed, to be transplanted; and the positive-

ly *tender* require to pass through two nursery beds, and some of them cannot be raised in perfection, without the assistance of stoves. The plants of each temperament, will be found under separate tables; annexed to each table is the course of culture, which long professional experience has confirmed to be right, and of which, attention to the original climate of the plant, compared with ours, and to the naturalized habits of the plant, where it has acquired any, suggested the principle, the first class is that of

HARDY ANNUALS.

This numerous tribe of flowering plants comprehends several, that are beautiful and fragrant in the highest degree, and some that are merely picturesque, from interesting peculiarities in their mode of growth.

In this table, as in the others, the genera are arranged alphabetically, with the species under their respective genus, and varieties under their parent species. The botanical names are first given, then the common English names, most generally received, with the habitudes and times of flowering.

TABLE I. *Hardy Annuals.*

1 *Adonis*, Pheasant's-eye, 3 kinds.
2 *Alcea*, Hollyhock, Rosea, Chinese
3 *Alyssum*, Madwort, or Alysson
4 *Amethystea Cerulea*, Blue Amethystea.
5 *Antirrhinum*, Snap dragon, or Toadflax, biennial, 4 kinds
6 *Atriplex Rosea*, Orache, or Red Spinach
7 *Alitum*, Strawberry Blite, 2 kinds
8 *Borago*, Borage, 4 kinds
9 *Calendula*, Marigold, 4 kinds
10 *Campanula*, Bell flower, blue, purple, white
11 *Centaurea Cyanus*, Purple, red, white, striped.
Moschata, Sweet Sultan.
Suavecolens, yellow Sultan.
Adami, Adams
12 *Cerinthe*, Stoney wort, major and minor
13 *Chelidonium*, Celandine, 2 kinds
14 *Clenopodium*, Goose foot
15 *Convolvulus*, Bind weed, 7 kinds
16 *Cucurbita*, Gourd, including the Pumpkin, Calabash, Mock Orange, &c.
17 *Cucurbita Melopepo*, Squash
18 *Cynoglossum*, Hound's tongue
19 *Delphinium*, Larkspur, 2 kinds, The common double Larkspur is generally recommended to be sown in drills or broad cast, in the sprng; but the compiler, dissents from this opinion, and as this plant, is impatient of being removed, the best method is to sow the seed in drills, in the fall, soon after it is ripe, in the place where they are to stand, and if the white, violet and rose coloured seed are kept distinct, by planting them in the drills, at six inches distanee, four, five or

six seeds in a spot, when they all come up, leave but one in a place, the effect will be beautiful, and the plants arrive at the greatest perfection, they may be diversified, white, rose and violet coloured alternately.

20 *Dianthus Chinensis*, Indian Pink
21 *Dracocephalum*, Dragon's Head
22 *Echinops*, Globe Thistle.
23 *Helianthus*, Sun flower, 4 kinds
24 *Hibiscus*, Bladder Ketmia
25 *Hieracium*, Hawk weed
26 *Iberis*, Candy tuft, 2 kinds
27 *Impatiens*, Balsam, Touch me not
28 *Lathyrus*, Sweet Pea, &c. 4 kinds
29 *Lavatera*, Mallow, 3 kinds
30 *Lunaria*, Honesty
31 *Lupinus*, Lupine, 7 kinds
32 *Lychnis*
33 *Malva*, Mallow
34 *Medigago*, Medick, including the snail plant, hedge hog plant, &c. 10 kinds
35 *Nicotiana*, Tobacco plant, 4 kinds
36 *Nigella*, Fennel flower, Love in a mist, 3 kinds
37 *Nolana Prostrata*
38 *Oenothera*, Tree Primrose
39 *Papaver*, Poppy, including the Corn poppy, several varieties
40 *Phascolus multiflorus*, Scarlet running bean
41 *Polygonum*, Persicaria
42 *Reseda Odorata*, Mignonette
43 *Ricinus*, Common and smooth kind
44 *Scabiosa*, Scabious, 6 kinds
45 *Scorpiurus*, Caterpillar, 3 kinds
46 *Silene*, Catchfly, 7 kinds
47 *Tropæolum*, Indian Cress, 4 kinds
48 *Viola Tricolor*, Heart's ease
49 *Xeranthemum*, Eternal flower
50 To the above List may be added the Animated Oats. The singularity of this plant consists, in this, take one of the seed, when ripe, and dip it in water, taking care not to injure the spiral awns or beard, and after taking it out from the water, lay it on a flat surface, when it will turn over, two or three times, as if animated.

Note. The articles, in the above list, may all be cultivated in the natural ground; although a few of them, being somewhat tender, are also placed in Table II, among the *half-hardy*, to have, occasionally, the artificial excitement, or protection requisite for that tribe, which will forward their flowering.

Some of the sorts, in the foregoing table, will continue flowering two or three months, or more; the duration of individual plants, in many kinds, is much shorter. Regarding this class collectively, they will yield a succession of flowers, from May or June, until October or November, when the latest wholly decay.

Many articles in the catalogue, have a character of positive beauty, exhibiting blossoms exquisite in form, and rendered conspicuous by the most delightful colours; these are in the first degree eligible for ornamenting a garden, designed to entertain the eye.

But other sorts are esteemed for some singularity in their figure, foliage, seed-pods, or fruit; or for their fragrance, rather than for the beauty of their flower; such as the Belvidere, for its close pyramidal growth; atriplex,

or red spinach, for the colour of its leaves; strawberry-blite, for its strawberry like fruit; yellow balsam, or touch-me-not, for its elastick spurting seed-pods; the caterpillar plant, hedgehog, and snail plants, for the singular forms which the seed-pods display; the palma christi, for its large palmated leaves; and the mignonette, for its eminently grateful odour.

For small or moderate gardens, a selection including only the more ornamental and curious, should be admitted, taking care not to crowd the borders, so as to injure the general effect. Larger grounds will admit a more comprehensive display.

The great deficiency of bloom in many of the flower gardens, during great part of the season, might be easily remedied, and a delightful show of flowers kept up in this department, as well as in the pleasure ground, from March to November, by introducing from our woods and fields, the beautiful ornaments, with which nature has so profusely decked them. There are thousands of lovely plants, indigenous to our fields, swamps, and woods, which if judiciously and carefully introduced, would charm the eye, gratify the senses, and fill the void, which, in the general, occurs in our gardens and pleasure grounds.

7.—*Protecting Flowering Shrubs, &c.*

Hardy flowering shrubs and evergreens, which you have in pots, should be protected from frosts, if this was not done in November or December, by plunging the pots up to their rims in the ground, and covering them with tan, &c·; allotting them for this purpose, a dry, warm situation, where water is not apt to stand.

The tender and more curious evergreens, &c. in pots, should have the protection of frames, or occasional coverings of mats, &c. in severe weather.

Protect, also, the roots of the choicer kinds, which are in the open ground, by laying dry mulch or litter round the lower parts of their stems.

Support, also, such new planted shrubs, as require it, with stakes, to prevent their being injured by the wind.

8.—*Care of Hyacinths, Tulips, and other Bulbous Roots.*

Cover hyacinths, tulips, and other curious bulbous roots, with mats, or with straw, dry long litter, but it must be carefully removed, when the severe weather is over.

If old decayed fine tan had, previous to the commencement of the severe winter frost, been placed over the beds of these bulbs, an inch or one inch and a half deep, it need not be removed, as it will keep down the weeds in spring, and also protect the roots from intense heat and drought.

9.—*Auriculas.*

The best auriculas in pots should be well protected from excessive rains, snow, or sharp frosts, which will preserve them in strength, to flower, in great perfection.

The choicest varieties of these plants should always be removed in their pots, about the beginning of November, and placed in frames, or in a bed, arched over with hoops, in a warm dry situation, in the full sun, where they can be occasionally covered, when the weather is unfavourable; but let the covers be kept constantly off in the day time, when the weather is mild and dry.

10.—*Ranunculuses and Anemones.*

The beds or frames, in which are planted your choice kinds of ranunculuses and anemones, should be carefully protected from frost, by laying tan, earth, or litter round the outside of the frames, and carefully covering them at nights and in severe weather with glasses or with boards, laid lengthwise or across the frames, with mats or other covering on top, but carefully observing to give them plenty of air, every day when the weather is tolerably mild; for if too much confined, they will draw up, and be good for nothing.

Plant ranunculuses and anemones in mild, dry, open weather, if you have any now out of the ground, and

that the frost will admit of your working it; these now planted, will succeed those which were put into the ground in October or November.

Choose a dry situation, where the ground is of a light rich nature, dig it well, break it fine, and form it into beds; rake the surface smooth, and then plant the roots. These roots, after planting, should be protected as above, from severe frosts and too much wet, either of which would at this season, materially injure them.

11.—*Care of Carnations.*

Carefully protect your fine carnations, that are in pots, from hard frosts, excessive rains, and snow; for notwithstanding the plants are hardy enough to stand the winter in the open air, yet it is advisable to defend them in bad weather.

Plunge the pots in a raised bed of dry compost, in the beginning of winter, and arch the bed over with pliant hoops, also draw mats over the arches, when the weather, is severe. If the pots were placed in garden frames, it would be better. Take care to put the glasses over them in rigorous weather, and at night, but be careful to give them free air by day, when the weather permits, either by taking the glasses off for a few hours, or tilting them up behind.

HALF-HARDY, *or* COMPARATIVELY TENDER ANNUALS.

There are many beautiful and curious flowers, which are neither endued with the full hardiness of the common plants, nor the extreme tenderness of the more delicate exoticks, which are comprised in

TABLE II. *Half-hardy Annuals.*

1 *Alcœa Rosea*, Chinese Hollyhock, the double is a Green-house plant
2 *Amaranthus*, 8 kinds
3 *Aster*, Star wort, or Queen Margaret, 3 kinds
4 *Calendula*, Marygold, 3 kinds
5 *Capsicum*, several varieties
6 *Carthamus*, Bastard Saffron, 3 kinds
7 *Cheiranthus*, Stock Gilly flower and wall flower, single and double of each eighteen or twenty sorts

8 *Chrysanthemum*, 4 kinds
9 *Convolvulus*, Bindweed, several sorts
10 *Dianthus Chinensis*, China Pink
11 *Geranium*, Crane's bill, 2 kinds
12 *Balsamina*, including the impatiens or Touch me not
13 *Ipomæa*, Scarlet convolvulus
14 *Jacobæa*
15 *Mirabilis*, Marvel of Peru several varieties. All perennial in the Green-house
16 *Momordica*, Balsam apple, see Kitchen Garden, page 87
17 *Nicotiana*, Tobacco plant, 4 kinds
18 *Nolana*
19 *Ocymum*, Basil
20 *Physalis*, Winter Cherry, 5 kinds
21 *Polygonum*, Persicaria
22 *Reseda Odorata*, Mignonette
23 *Ricinus*, 3 kinds
24 *Scabiosa*, Scabious, 4 kinds
25 *Sonicio*, Groundsel
26 *Solanum*, Night shade
27 *Lycopersecum*, Love apple, Melongena, Egg plant
28 *Tagetes Erecta*, African Marigold
29 *Tagetes Patula*, French Marigold
30 *Trichoranthes*, Snake Gourd, 2 kinds
31 *Xerranthemum*, Eternal flower, 2 kinds
32 *Zea*, Indian Corn, several kinds
33 *Zinnia*, 5 kinds

In the above table, some species appear, which have been inserted among the *hardy annuals*. By introducing them here, it is indended to intimate, that they are rather less hardy, than such as are exclusively found in table I. and that if they participate with the comparatively tender, in the advantage of a moderate hot-bed, it will mature them sooner. Of this description are the ten week stock, Indian pink, Chinese holyhock, &c.

The duplicate emumerations, common to tables II. and III. are to indicate that those particular plants are allied in nature, to the extremely tender, and that, although upon occasion they may be raised by a moderate hot-bed, yet it is desirable to give them the general culture of the most tender sorts, by which they can be sooner brought to flower in perfection.

A number of the exotick annuals from warm climates, which are distributed in the different tables, are in reality of the same temperament, that is, all positively tender, although there are grounds for treating them as distant in constitution. Thus if the life of a tender exotick is so short, that it will reach perfection in our summer, it may be cultivated without artificial heat, and in that sense is hardy.

We come now to the third class,

TENDER ANNUALS.

The following plants comprehended under this title,

are all exotick species and varieties. Some of them are prized for the exquisite beauty of their flowers, others for their fine tricoloured and bicoloured leaves, a third description are cultivated for the curiosity of the fruit, or for striking peculiarities, in the figure of the plant. The whole form desirable ornaments for the flower garden and pleasure ground. They are positively tender in constitution, and require the assistance of hot-beds, and glass in a greater degree, than those of the second class, in order to flower in perfection. Some of the annuals may be made biennial, by preserving their vigor in an artificial climate: thus the marvel of Peru, taken up in October, and preserved from the frost and wet in winter, under fine sand in a dry apartment, and planted in March or April, in a pot plunged into a hot-bed, will shoot strongly, in a renewed growth, and flower earlier than in the previous season, in such excellence, as to show that the plant from seed wanted something of perfection; for this Peruvian stranger, although considered as annual in our gardens, is always perennial in its native climate.

Table III. *Tender Annual Flowers.*

1 *Amaranthus*, Some of these have been noticed in Table II. To bring them to the highest perfection, they should be cultivated as tender annuals, the three other kinds are really tender
2 *Browalia*, 2 kinds
3 *Calceolaria*, Slipper-wort
4 *Gomphrena*, Globe Amaranth, white and read
5 *Hedysarum*, Cocks-comb, 3 kinds
6 *Impatiens, Balsam*, 2 kinds
7 *Ipomea Caccinca*, Quamoclit
8 *Mesembryanthemum*, Ice plant. Although this plant is generally raised by artificial heat, yet if allowed to stand in the open ground, scatter its seeds, in autumn, they will come up abundantly, the succeeding spring, in the middle states
9 *Mimosa Pudica*, Humble plant. On being touched, the leaves close and all bow downward. The sensitive plant only closes its leaves
10 *Mirabilis*, Marvel of Peru. All the kinds are perennial in the Green-house
11 *Solanum*, Night shade
12 *Melongena*, Egg plant, white fruited, purple fruited, yellow
13 *Spigelia*, Worm grass

BIENNIALS AND IMPERFECT PERENNIALS.

The true biennial flowering plants, or such as do not flower till the second year, and then, after producing

seed, die wholly root and stem, are not very numerous. Raised from seed in the spring, they shoot up in a tufty head of flowers the first year; and into flower stalks the year following, show their bloom, ripen, seed, and perish. There are, however, several families treated as biennials, although they may be termed imperfect perennials; these have vigour enough in the root, to survive the second winter; but the flowers of the third summer, are inferiour to those of the preceding, and the plant appears to dwindle in the stem. To have a succession of these in perfection, it is therefore requisite to raise some sorts annually from seed, and to continue others, in perennial re-production by layers, by pipings, by cuttings, or by slips of the young shoots of the year, in summer. On the other hand, a few biennials have a slender affinity with the annuals, by flowering the same year in which they are sown; but these few bear a finer bloom the second year, and then perish, which makes them true biennials. The varieties of the imperfect perennials, will be found repeated in the fifth table, under the generick and specifick names, which are distinguished by italicks, in this.

TABLE IV. *Biennials and Imperfect Perennials.*

1 *Agrostema*, including the Rose Campions
2 *Alcea*, Holly-hock, an imperfect Perennial
3 *Alyssum*, Madwort
4 *Anthyllis*, Lady's finger, scarlet
5 Canterbury, Bells, 2 kinds
6 Carnation, Dianthus Coronarius
7 *Catanranche*, Candy Lion's foot
8 *Cynoglassum*, Hound's tongue
9 *Dianthus Chinensis*, China pink
10 Dianthus Deltoides, Common pink
11 *Digitalis*, Fox Glove
12 *Hesperis*, Rocket
13 Horminium Sativum, Seedling Clary
14 Horned Poppy, or Glaucium
15 *Isatis Tinctoria*, Woad, or Dyer's Weed, raised from seed
16 *Lavatera Arborea*. Tree Mallow
17 *Lunaria*, Moon Wort, or Honesty
18 *Oenothera*, Tree Primrose, see Perennials
19 *Reseda*, Bastard Rocket
20 *Salvia*, Sage, see Shrubberry Table IV.
21 *Scabiosa*, Scabious, 2 kinds
22 Snap-dragon Major
23 Stock, Biennial a variety of the Cheiranthus, Brompton Stock; tall and upright. Red, scarlet, purple, white, double flowered of each

Queen Stock, lower and branching, Purple, white, red.

Twickenham Stock, larger branching, Common purple,

Absolute precision in classing flowering plants, according to their relative permanence is impossible; because the reputed periods, at which a plant blooms and decays, are not always constant, in the same climate. Transferred to warm regions, some plants, that are

even annual with us, have become perennial; an inverse change of constitution has been noticed under annuals to which class a cold sky, not unfrequently, reduces, a perennial exotick. The above specified varieties of the stock are raised constantly from seed, as mere Biennials, because they rarely flower at all after the second year, and cannot be propagated by cuttings or layers.

24 Sweet William, Dianthus barbatus. Mostly biennial, yet sometimes continued after the second year, by propagating the double or fine kinds by layers. In the middle states, they are perennials

25 *Tragopogon*, Goatsbeard, 3 kinds, including the Salsafy

26 *Verbaseum*, Mullein

27 Wall flower. A variety of the *Cheiranthus*. The double sorts are continued by slips and cuttings of the young shoots, in May and June.

PERENNIAL FIBROUS ROOTED FLOWERS.

The class defined—The perennials of this class, are divided from those of the next, only by the character of the root, and the two races constitute the entire tribe of the perennial herbaceous flowers; in all which tribe, after the stems have died down to the root, fresh buds are produced in the subsequent spring, in the surviving root, below the surface of the ground; and the same individual plant thus renews its annual flower stalks, for a long series of years.

The definition *fibrous rooted* does not exclude plants, whose roots are in some degree fleshy, provided the accompaniment of fibres, and the general figure of the root, separate it from the tuberous and bulbous classes.

Most of the plants in the fifth table are hardy.—except where individuals are marked otherwise, the fibrous-rooted perennials, in the following table, are hardy, and will grow freely in the open ground. The methods of propagation, with the general course of culture, will be subjoined.

Some plants require a peculiar treatment, as noticed in the table.

TABLE V. *Fibrous-rooted Perennials.*

1 *Acanthus*, Bears-Breech, 3 kinds

2 *Achillea*, Millfoil or yarrow, 16 kinds

3 *Aconitum*, Wolfs-bane or Monk's-hood, 10 kinds—Deadly poisonous,

4 *Acorus Calamus*, Sweet Rush, American and European, 2 kinds the American is the strongest

5 *Actæa*, Herb Christopher, 3 kinds

6 *Adonis Vernalis*, Vernal Adonis
7 *Agrimonia*, Agrimony, 2 kinds
8 *Agrostemma*, Rose Campion. When this plant is double, it is continued by off-sets
9 *Agrostemma*, Flos Jovis, Flower of Jove
10 *Ajuga*, Bugle, 3 kinds
11 *Alcæa*, Holly-hock, 3 kinds. The Holly-hock is propagated by seeds, sown, about the middle of April, in drills of light earth, and covered to the depth of half an inch. After the plants have put out six or eight leaves, they should be transplanted into nursery beds, receiving repeated waterings, until they have taken root, let them be finally transplanted in October
12 *Alchemilla*, Lady's Mantle 3 kinds
13 *Aletris*
14 *Althæa*, Marsh Mallow
15 *Alyssum*, Madwort, 8 kinds
16 *Anchusa*, Buglass, 2 kinds
17 *Anethum*, including Fennel
18 *Angelica*
19 *Anthemis*, Chamomile, single and double
20 *Anthericum*, Spider wort, 2 kinds
21 *Antirrhinum*, Snap-dragon, 7 kinds
22 *Apocynum*, Dogs-bone
23 *Aquilegia*, Columbine. The best sort is the treble nectariumed variegated. The seed should be sown in a nursery bed, in autumn; for when not put into the ground till spring, they will remain a whole year before they germinate. In the May after they have appeared, they will be strong enough to transplant to a second nursery bed. In the subsequent autumn remove them finally, and they will flower the following year
24 *Arabis*, Mouse ear
25 *Arenaria*, Sand wort
26 *Aretia*
27 *Aristolachia*, Birthwort, including the snake-root, 2 kinds
28 *Arnica*, 2 kinds
29 *Artemisia*, Mugwort, Southern Wood and Wormwood, 7 kinds
30 *Arum*, Wake Robin, 6 kinds
31 *Arundo*, Reed, 3 kinds
32 *Asarum*, Asarabacca, 3 kinds
33 *Asclepias*, Swallow wort 4 kinds
34 *Asperula*, Woodroof, scent grateful
35 *Asphodelus*, King's spear
36 *Asplenium*, Spleenwort, 6 kinds
37 *Aster*, Starwort, 41 kinds
38 *Astragalus*, Milk vetch, 5 kinds
39 *Astrantia*, Black Masterwort, 2 kinds
40 *Athamanta*, Spignel
41 *Atropa*, Deadly night shade, including the Mandrake
42 *Bellis*, The Daisy, 4 kinds
43 *Betonica*, Betony, 5 kinds
44 *Borago*, Borage
45 *Bryonia*, Briony
46 *Buphthalmum*, Ox eye, 3 kinds
47 *Beupleurum*, Hare's ear
48 *Butomus*, Flowering Rush 3 kinds
49 *Cacalia*, Colt's foot, 3 kinds
50 *Calla*, Wake Robin, or Ethopian Arum
51 *Caltha Palustris*, Marsh Marigold. Requires a moist soil, and shady situation
52 *Campanula*, Bell flower, including Canterbury Bells, 10 kinds
53 *Cardamine*, Ladies, Smock, 3 kinds
54 *Carduus*; Thistle, 2 kinds
55 *Cassia Maryiandica* 10 kinds
56 *Centaurea*, Candia Lion's foot
57 *Cerastium*, Mouse ear, 4 kinds
58 *Chærophyllum*, Wild Chervil, 2 kinds
59 *Cheiranthus*, Wall flower, yellow, double yellow, bloody wall flower, double bloody and white. The roots are perennial, and the stems rather woody and lasting, than herbaceous; yet the flowers degenerate, so that it is proper to raise a supply every year. For Stock, see Table IV.
60 *Chelidonium*, Celandine, 2 kinds
61 *Chelone*, 3 kinds
62 *Chrysanthemum*, Corn Marigold, 5 kinds
63 *Chrysocoma*, Goldylocks, 2 kinds
64 *Chrysosplenium*, Saxifrage, 2 kinds
65 *Circæa*, Enchanters' Night-shade, 3 kinds
66 *Clinopodium*, Field Basil, 2 kinds

67 *Collinsonia*
68 *Clypeola*, Treacle Mustard
69 *Comara*, Marsh Cinquefoil
70 *Convallaria*, Lily of the Valley, white; double white, red flowered; multiflora, or many flowered Solomon's seal, with 4 other kinds
71 *Convolvulus* Bindweed, 4 kinds
72 *Coynza*, Flea bone
73 *Corcopsis*, Tickseeded Sunflower, 6 kinds
74 *Cornus*, Cornel or Dogberry: 2 kinds
75 *Cortusa* Bear's ear Sanicle, 2 kinds
76 *Cotyledon*, Navelwort
77 *Crambe Maritima*, Sea cabbage, the stalks divide into fine heads of flowers, see Kitchen Garden
78 *Crithmum*, Samphire; Sea Samphire must be sown in a gravelly or stony place
79 *Crotalaria*, Rattlewort
80 *Cucumber*, *Spurting*; Blows the first year; the root is perennial, and will send up stalks for ten years successively, although the seed, in the seed shops is denominated, annual. The lists, in most professional works, tend to perpetuate this mistake, which the authors might have avoided, had they consulted the *Hortus Revensis*
81 *Cyclamen*, Sow bread, see Table VI
82 *Cynoglossum*, Hound's tongue, 3 kinds
83 *Datisca*, Bastard Hemp
84 *Dentaria*, Toothwort 3 kinds
85 *Dianthus*, Pink, Carnation Clove gilliflower, Sweet William, upwards of 20 varieties
86 *Dictamnus*, White Dittany
87 *Digitalis*, Fox Glove, 5 kinds
88 *Dipsacus*, Teasel, Fuller's and Wild
89 *Dodecatheon Meadia*, American Cowslip
90 *Doronicum*, Leopard's bane, 4 kinds
91 *Draba*, Whitlowgrass, 3 kinds
92 *Dracocephalum*, Dragon's head, 5 kinds
93 *Dryas*
94 *Echinops*, Globe Thistle
95 *Echium vulgare*, Viper's Bugloss
96 *Epilobium*, Wilsow Herb, 7 kinds
97 *Epimedium*, Alpine Barrenwort
98 *Equisetum Hyemale*, Winter horse tail
99 *Erigeron*, Flea bane, 3 kinds
100 *Erinus Alpine*
101 *Eryngium*, Sea Holly, 7 kinds
102 *Erysimum*, Winter Cress, single and double yellow
103 *Eupatorium*, Hemp Agrimony, 8 kinds
104 *Euphorbia*, Spurge, 2 kinds
105 *Fennula*, Fennel giant, 3 kinds
106 *Fragaria*, Strawberry, see Fruit Garden, page 160
107 *Frankena*, Sea Heath, 2 kinds
108 *Fumaria*. Fumitory, 3 kinds
109 *Galega*, Goat's Rue, 2 kinds
110 *Galium*, Ladies Bedstraw, 5
111 *Gaura*, Virginia Loose-strife
112 *Gentiana*, Gentian, 7 kinds
113 *Geranium*, Crane's bill. There are above 80 kinds. The African sorts are raised in a moderate hot bed. To preserve them through the winter, they require protection from frost, but artificial heat is not necessary; they should be frequently watered, a little, at a time, and their dead leaves, pulled of. They must not stand under the shade of other plants
114 *Geum*, Avens, or Herb Burnet 4 kinds
115 *Glechoma*, Ground Ivy
116 *Globularia*, Globe Daisy, 2 kinds
117 *Glycyrrhiza*, Liquorice
118 *Gnaphaliam*. Everlasting, 6 kinds
119 *Gundelia*, 2 kinds
119 *Gypsophila*, 2 kinds
120 *Hedysarum*, Saint Foin; including Onabrychis and French honeysuckle, 4 kinds
121 *Helenium*, Bastard Sunflower, 2 kinds
122 *Helianthus*, Sunflower, several kinds; for tuberous-rooted, see table VI.
123 *Helleborus*, Bear's Foot, 4 kinds
124 *Helonias*; 2 kinds
125 *Hemerocallis*, Day Lily, or Lily Aspodel, 3 kinds
126 *Hesperis*, Rocket, 2 kinds
127 *Heuchera*, American Sanicle

128 *Hibiscus Palustris*, Marsh Hibiscus
129 *Hieracium*, Hawk-weed, 4 kinds
130 *Hippocrepsis*, Horse-shoe vetch
131 *Humulus*, Hop—male and female
132 *Hydrastis*, Yellow Root
133 *Hydrophyllum*, Water leaf
134 *Hycsoyamus*, Henbane
135 *Hypiercum*, St John's wort—see Shrubberry
136 *Hypoxis*, Canadian Star of Bethlehem
137 *Iberis*, Candy tuft
138 *Imperatoria Master wort*
139 *Inula*, Elecampane, 4 kinds
140 *Iris*, Fleur de lis, 18 kinds—Bulbous, Iries, see table VI.
141 *Lamium*, Archangle or Dead Nettle, 3 kinds
142 *Laserpitium*, Laser wort 3 kinds
143 *Lathyrum*, Everlasting Pea, 6 kinds
144 *Lovatera arborca*, Tree like mallow
145 *Leontodon Aureum*, Golden dandelion
146 *Leonurus*, Lion's Tail
147 *Lepidium*, Dittander
148 *Ligusticum*, Lovage
149 *Linum Perenne*, Perennial Siberian Flax
150 *Lithospermum*, Gromwell, 3 kinds
151 *Lobelia*, Cardinal Flower, 2 kinds
152 *Lotus*, Bird's Foot Trefoil, 4 kinds
153 *Lunaria*, Perennial Moonwort; 2 kinds
154 *Lupinus Perennis*, Perennial Lupine
155 *Lychnis* 6 kinds, scarlet, &c. very beautiful
156 *Lycopus*, Water Horehound; 2 kinds
157 *Lysimachia*, Loose Strife, 6 kinds
158 *Lythrum*, Willow herb, 2 kinds
159 *Malva*, Mallow, 2 kinds
160 *Marubium*, Horebound, 3 kinds
161 *Matricaria*, Feverfew, 4 varieties
162 *Medigago*. Snail Trefoil, 3 kinds
163 *Melissa*, Balm, 5 kinds
164 *Melitis*, Bastard Baun, 2 kinds
165 *Mentha*, Mint; including Bergamot, peppermint and pennyroyal, 13 kinds
166 *Mercurialis*, Dog's Mercury
167 *Mimulus*. Monkly Flower, kinds
168 *Monarda*, Lion's Tail. 5 kinds
169 *Napœa*
170 *Nepeta*, Catmint, 6 kinds
171 *Nymphœa*, Water Lily, 4 kinds
172 *Oenothera*, Tree Primrose, 2 kinds
173 *Onorlea Sensibilis*, Sensitive Fern
174 *Onosma*, 2 kinds
175 *Ophioglossum*, Adder's tongue
176 *Ophrys*. Twy Blade Orchis—see table VI.
177 *Origanum*, Origanum or Marjorum, 5 kinds
178 *Orobus*, Bitter Vetch, 4 kinds
179 *Osmunda*, Moonwort Fern, 5 kinds
180 *Othonna*, Ragwort
181 *Oxalis*, Wood sorrel, 4 kinds
182 *Panax*, Ginseng
183 *Papaver*, Poppy, 2 kinds
184 *Paris*, Truelove
185 *Parthenium integrifolium*. Entire leaves Feverfew
186 *Peltaria*, Garlick Peltaria
187 *Peucedanum*, Hog's Fennel
188 *Phalaris*, Canary Grass
189 *Phlomis*, Jerusalem Sage—see table VI. and Shrubbery, table II.
190 *Phlox*, Bastard Lychnis, 7 kinds
191 *Physalis*, Alkekengi or Winter Cherry
192 *Phyteuma*, Horn Rampion, 3 kinds
193 *Phytolacca*, American, Nightshade, or poke
194 *Pimpinella*, Burnet Saxifrage, 3 kinds
195 *Plantago*, Plantain, 7 kinds
196 *Plumbago*, Leadwort
197 *Podophyllum*, Duck's Foot or May Apple
198 *Polemonium*, Greek Valerian 3 kinds
199 *Polygonum*, Bistort or Snake weed 4 kinds
200 *Polymnia*, 2 kinds
201 *Polypodium*, Polypody Fern, 13 kinds
202 *Potentilla*, Cinque Foil, 9 kinds
203 *Poterium*, Burnet, 2 kinds
204 *Prenanthes Purpureus*, purple

Prenanthes
205 *Primula*, Primrose, upwards of 3 kinds
206 *Primula Auricula*, Auricula—a great variety; some exquisitely beautiful
207 *Prunella*, Self-heal, 3 kinds
208 *Pteris*, Brakes, or Fern, 2 kinds
209 *Pulmonaria*, Lungwort, 4 kinds
210 *Pyrola*, Winter green, 3 kinds
211 *Ranunculus*, or Crowfoot—see table VI.
212 *Rheum*, Rhubarb, 4 kinds
213 *Rhexia*, Virginian
214 *Reseda*, Mignonette, &c.
215 *Rhodiola*, Rose Root
216 *Rubia*, Madder, 2 kinds
217 *Rubus*, Bramble or Cloudberry, 2 kinds
218 *Rudbeckia*, American, Sunflower 5 kinds
219 *Rumex*, including Dock and Sorrel, 8 kinds
220 *Salvia*, Sage and Clary—see Shrubbery. table IV.
221 *Samolus Valerandi*, Round leaved Water Pempernel
222 *Sambucus Ebulus*, Dwarf Elder
223 *Sanguinaria* Bloodwort
224 *Sanguisorba*, Burnet Saxifrage 3 kinds
225 *Sanicula*, Sanicle, 2 kinds
226 *Saponaria*, Soapwort 8 kinds
227 *Sarracenia*, Side Saddle flower
228 *Saururus*, Lizard's Tail
229 *Satyrium*, Lizard Orchis
230 *Saxifraga*, Saxifrage, 21 kinds
231 *Scabiosa*, Scabious, 9 kinds
232 *Scandix*, Myrrh
233 *Scornozera*
234 *Scrophularia*, Figwort, 6 kinds
235 *Scutellaria*, Helmet Flower, 5 kinds
236 *Sedum*, House leek 10 kinds
237 *Sempervivum*, Live-ever or Greater house leek, 4 kinds
238 *Senecio*, Groundsel, 4 kinds
239 *Serapias*, Bastard Helebore, 6 kinds
240 *Serratula*, Saw wort, 5 kinds
241 *Sibaldia procumbens*, Trailing Sabaldia
242 *Sibthorpia*, Cornish Money Wort
243 *Sideritis*, Iron wort, 3 kinds
244 *Silene*, Viscous Campion or Catchfly, 5 kinds
245 *Silphium*, Bastard Chrysanthemum. 4 kinds
246 *Solidago*, Golden Rod, 18 kinds
247 *Sophora*, 2 kinds
248 *Spigelia*, Wormseed or Wormgrass
249 *Spiræa*, 5 kinds
250 *Stachys*, Base Horehound, 4 kinds
251 *Statice*, Thrift or Sea Pink, 5 kinds
252 *Stipa*, Feather Grass, 2 kinds
253 *Swertia Perennis*, Marsh Gentian
254 *Symphytum*, Comfrey—see table VI.
255 *Tabernæmonta*, 2 kinds
256 *Tanacetum*, Tansey, 3 kinds
257 *Telephium*, Orpine
258 *Teucrium*, Germander, 9 kinds,
259 *Thalictrum*, Meadow Rue, 13 kinds
260 *Thapsia*, Deadly Carrot
261 *Tiarella*, American Sanicle
262 *Tormentilla*, 2 kinds
263 *Trachelium*, Throat wort
264 *Tradescantia*, Virginian Spiderwort, 6 varieties
265 *Trichomanes*, Hare's Foot Fern
266 *Trientalis*, Chick weed Winter green
267 *Trifolium*, Trefoil; including white clover, 7 kinds
268 *Trillium*, American Paris, 3 kinds
269 *Triosteum*, Fever root
270 *Trollius*, Globe Flower, 2 kinds
271 *Turritis*, Tower Mustard, 2 kinds
272 *Tussilago*, Colt's Foot, 4 kinds
273 *Urtica*, Nettle, 3 kinds
274 *Uvularia*, 3 kinds
275 *Valantia cruciata*, Cross wort
276 *Valeriana*, Valerian 7 kinds
277 *Veratrum*, White Hellebore, kinds
278 *Verbascum*, Mullein, 6 kinds
279 *Verbena*, Vervain, 4 kinds
280 *Veronica*, Speedwell, 20 kinds
281 *Vetch*, 4 kinds
282 *Viola*, Violet, 14 kinds
283 *Viola Tricolor*, Three coloured violet
284 *Winter Aconite*—See Hellebo-rus, table VI.
285 *Zygophillum*, Bean Caper

BULBOUS AND TUBEROUS-ROOTED FLOWERS.

The perennial flowering plants, which remain to be treated of, consists of those with *bulbous*, and those with *tuberous* roots.

Bulbous and tuberous-rooted flowers defined—Regarding those distinctions alone, on which something practical depends, we do not find any thing in the nature of bulbous-rooted flowers, compared with the tuberous, which should divide one from the other, in a catalogue for horticultural purposes. We consider the distinction between these and the fibrous rooted perennials, to turn on this question. Can the root, whatever be its shape, be treated like the well known bulbs? As soon as the herb, or extant part of the plant, dacays, can the root be taken up, and during a considerable interval, be kept out of the ground in a dry state, as though it were a large seed, without destroying or effecting the dormant principle of vegetation and the power of regeneration? If it can, it is not of the nature technically intended by *fibrous-rooted*, and if not *bulbous* in shape, is connected in constitution with the *bulbous* tribe.

In conformity with the definition of Linnæus, a bulb may be explained to be an embryo plant, enclosed within an hypernaculum, or winter-lodge, produced upon the root by the descent of the stem, carrying down with it vegetable rudiments, derived from the dissolved herb. The bulb is therefore a species of bud under ground, and as the *gemmæ* or proper buds on trees, consists in the interior part of a number of small imbricated scales, to defend the embryo vegetable from cold and adverse weather, till spring, so the outer part of the bulb, or bud on the root, is merely the coat to the rudiment of a future shoot. Underneath this is found an alburnous substance, which forms the greatest part of the future stem. The bulb also performs the office of a true root, as the receptacle, in which concrete sap is hoarded up for the nourishment of the embryo germ during winter. At the lower part of the bulb, may be observed a fleshy knob,

whence proceed a number of fibres. This knob with the pendent fibres, is the true root or vehicle of nourishment to the plant, the part above being only the cradle of a new stem. After the bulb has repaired the loss of the stem a limited number of times, it perishes; but not till it has produced on its sides several off-sets, or smaller bulbs, for perpetuating the species. Bulbous roots are termed solid, when composed of one uniform mass, as those of the tulip; tunicated, when formed of continuous coats, one enveloping the other, as in the hyacinth; squamose, when constituted of minute flakes or scales, as in the martagon, crown imperial, white and orange lily. They are also said to be duplicate, when there are two to a plant, and aggregate, when there is a congeries of them to one root. Blubs are mostly round or oval at the bottom, with a turbinated point upwards.

As tuber signifies a knob or swelling, so the distinguishing marks of a tuberous root, compared with a bulb, reside in little irregular protuberances. The mass of which the tubers are a continuation, is generally solid and fleshy, though some tuberous roots are tunicated. In some species, the principal knobbed mass is small and irregular, as the root of the anemone: other roots consist of small oblong tubers, connected into a head at top and diverging below, as in the ranunculus; another sort are small, oblong, and painted, as the tubers of the *dens canis*, or dog's-tooth; those of a fourth description, are larger and less irregular, oblong—roundish—the shape of a few approaching to that of a bulb, as in the bulbo-tuberous varieties of the iris; some plants have single large bulbo-tubers, in others a number are found adhering to one root.

The plants comprehended in the table, flower in succession, from an early stage in spring to a late period in autumn; the bulbs especially will contribute to maintain a successive blow from January or February, to October, and not unfrequently till November.

A part or the whole of the roots may be occasionally re-planted in new prepared beds, soon in the same season; or the planting may be deferred three months or more; as in the dormant state, which follows the decay of the stem, they admit of being kept several months out of the ground, and having been dried and cleaned, may be housed accordingly, till the planting season in autumn, which extends from the middle of September to the middle of November; this is the season in which these roots should be planted, when intended for full flowering the following year; or a portion may be retained, for early spring planting in February or beginning of March, either with the design of having a successional bloom of particular sorts, for because there may not be beds ready in autumn, to receive them; but these should be planted early in spring, that they may flower the same year in tolerable vigour.

Autumnal bulbs described.—There is a small tribe denominated autumnal bulbs, from their flowering only in autumn, about, September and October, or later; rising with a naked or leafless stem. When the flowers decline, the leaves in most sorts spring, and these will flourish till April, May, or June following, then decay; and conformably to the direction for the general bulbs, they decay of the leaf in these, is the proper time for removing these sorts, when it is necessary either to separate the off-sets, or to re-plant the parent bulb in a new prepared bed, in June, July, or August, for flowering the same season, in autumn. These peculiar sorts, besides being included in the table which follows, are classed distinctly at the end of it.

TABLE. VI. *Bulbous and Tuberous-rooted Flowers.*

The plants marked F, should be placed for the winter, in a frame or green-house.

1 *Adoxa Moschatellina*, Tuberous Moschatel
2 *Allium*, Molly, 5 kinds
3 *Amaryllis lutea*, Yellow amaryllis
Atamasco, F. Atamasco Lily

4 *Anemone hortensis*, F. Garden Anemone—many varieties
5 *Arethusa Bulbosa*, Bulbous Arethusa
6 *Calchicum Autumnale*, Meadow Saffron
Montanum, Mountain Saffron
7 *Claytonia Virginia*, Virginian Claytonia
8 *Crocus vernus*, Spring crocus—many varieties
officinalis, True saffron
Susianis, Cloth of Gold Crocus
9 *Crown Imperial*—many varieties
10 *Cyclamen*, 5 kinds—F.
11 *Erythronium*, Dog tooth Violet, 2 kinds
12 *Fritillaria*, 3 kinds
13 *Fumaria*, Fumitory, 3 kinds
14 *Galanthus nivalis*, Snowdrop
15 *Gladoilus*, Corn Flag, 2 kinds
16 *Hyacinth*, 12 kinds
17 *Helleborus hyemalis*, Winter Helebore
18 *Hipoxis erecta*, Upright Hipoxis
19 *Iris*, 4 kinds
20 *Iris Sisyrinchium*, F. Great Spring Snowdrop
21 *Leucoium vernum*, Spring snowdrop
æstivum, Summer do.
autumnale, Autumnal snowdrop
22 *Lilium*, Lily, 10 kinds
23 *Limodorum Tuberosum*, Tuberous-rooted Limodorum
24 *Narcissus*, 13 kinds
25 *Narcissus Tazetta*, F. Polyanthus Narcissus
26 *Ophrys*, 9 kinds
27 *Orchis*, 9 kinds
28 *Ornithogalum*, Star of Bethlehem, 5 kinds
29 *Oxalis violacea*, Purple Oxalis
30 *Pæonia*, Peony, 5 kinds
31 *Pancratium maritimum*, F. Sea Pancratium
32 *Ranunculus Asiaticus*, F. Garden Ranunculus—many varieties
Ranunculus bulbosus, flo. plen. Crowfoot
33 *Sanguinaria Canadense*, Indian Paint
34 *Scilla Italica*, Italian Squill
Peruviana, Starry hyacinth
Autumnalis, Autumnal do, two other kinds
35 *Thalictrum Anemonides*, Anemone like Thalictrum
36 *Tulipa Gesneriana*, Garden Tulip—many varieties
Sylvestris, Yellow Wild Tulip

Recapitulation of Autumnal Bulbs.

1 *Amaryllis*
Yellow Autumnal
Guernsey Lily
Belladonna Lily
2 *Colchicum*
Crocus: the autumnal varieties
Cyclamen, Autumnal
4 *Leucoium*, Autumnal
5 *Narcissus*, Serotinus, or late florus
6 *Pancratium*

12.—*Planting Tulips, Hyacinths, and other Bulbous Roots.*

If you have tulips, crocusses, snow-drops, jonquils, ornithogalums, hyacinths, bulbous-iris, Persian-irises, gladioluses, frittillaries, narcissuses, crown imperials, or any other kinds of hardy bulbous flower roots, that yet remain above ground, they should now be planted as

soon as the weather will permit. Mild dry weather should be chosen for planting these, and all other kinds of bulbous roots, and see that the ground is not too wet.

13.—*Flowers to blow in the House and in Hot-beds.*

Hyacinths, early dwarf tulips, &c. may now be set upon bulb glasses of water, for blowing in the apartments of the house, or plunged into hot-beds.

Plant also various sorts of bulbous and tuberous flower roots in pots, for blowing in the house; plant the roots *just over their crowns*, place the pots near a window, and when the roots begin to shoot, give them occasional waterings.

Bulbous, tuberous, and fibrous rooted perennial flowers, if planted in pots, and now placed in a hot-bed, &c. will shoot and flower early, without much trouble, only to water them occasionally. Pots of roses, dwarf almonds, double blossom cherry, peach, &c. may also be placed in the forcing houses for early bloom.

14.—*Care of Perennial Fibrous-rooted Plants in Pots.*

Double wall-flowers, double stocks, double sweet-williams, and any other of the choicer kinds of perennial plants in pots, should be well secured from severe frosts.

Take care also of all other choicer kinds of fibrous-rooted perennial plants in general, which are in pots, to secure them from the frosts, such as the double rose campion, double scarlet lychnis, &c.

15.—*Seedling Flowers.*

Boxes or pots of any choice kinds of seedling flowers, should be covered in frosty weather, with mats, frames, &c.

Also, beds of the more curious sorts of seedling flowers in the common ground, should be covered in hard frosts, with mats or dry long litter.

16.—*Protecting flowering Shrubs.*

To protect from the frosts, the roots of hardy flowering shrubs, such as evergreens in pots, plunge them to their rims in the ground, and cover the pots with leaves of trees or dry litter; place them in a warm dry situation, where water is not apt to stand.

Protect also the roots of the choicer kinds of new planted flowering shrubs and evergreens from frost. This is done by laying dry mulchy litter on the surface of the ground, close round the lower part of the stem of each, as far as their roots extend.

Southern States.

Where mild weather is now prevalent, and the ground not bound up by frost, you may plant all kinds of hardy deciduous trees and shrubs; and towards the latter end of the month, especially where smart frosts are not expected to follow, you may plant the different kinds of hardy evergreen tree and shrubs.

Plant cuttings and make layers of such kinds, as you wish to propagate by these methods; plant dwarf box for edgings, which is superiour to any other kind of plant for that purpose; transplant suckers from the roots of roses, and such other shrubs, as produce them, and are worthy of cultivation.

Hedges of the various kinds of hawthorn, horn-bean, beech, elm, privet, white mulberry, &c. may now be planted. Make and repair grass and gravel walks, keep such as are made in clean neat order, and give them occasional rollings.

Sow hardy annual and perennial flower seeds, and perform the various other works, directed to be done in the middle states, in the Flower Garden and Pleasure Ground, in March.

FOR FEBRUARY.

1.—*Dress and Dig Borders, Beds, &c.*

If any borders, beds, &c. were not dug last autumn, whenever the weather will permit, let them be carefully hoed, cleaned from weeds, and neatly raked.

2.—*Hardy Annual Flower Seeds.*

Towards the latter end of this month, you may sow many sorts of hardy annual flower seeds, in different parts of the garden, borders, &c.

The sorts proper to be sown at this time, are lark-spur, flos adonis, scarlet peas, sweet scented pea, Tangier peas, candy tuft, dwarf lychnis, Venus' looking-glass, Venus' navel wort, Lobel's cath-fly, dwarf poppy, nigella, oriental mallow, lavatera, hawk-weed, annual sunflower, with many others—see catalogue, January, page 277. Some of these, if sown now, will flower much better, than if sown at a later period, particularly the lark-spur, flos adonis, and the flowering peas. They must be all sown, where they are to remain, as they do not bear transplanting. The small seed may be thinned to about two inches apart, and covered about one quarter of an inch with earth; the peas covered about one inch. These last and the sunflower, to be allowed sufficient room.

3.—*Plant Hardy Fibrous-rooted Perennials.*

If the weather is mild and open, and the ground dry, towards the end of the month, plant out the hardy fib-

rous rooted perennials and biennials, such as lobeliases-phloxes, dracocephalums, polyanthuses, primroses, London pride, violets, double chamomile, thrift, &c. Also, rose campion, catch-fly, carnations, pinks, sweet-williams, columbines, Canterbury bells, fox gloves, hollyhocks, &c.

In planting the above, or any other sorts, particularly at this time, preserve balls of earth about their roots, and dispose them in such a manner, that there may be a regular bloom during the flowering season.

4.—*Auriculas, Anemonies, Ranunculuses, Tulips, and Hyacinths.*

The auriculas in pots, must still be carefully protected from frosts, snow, and rain, by glasses or other coverings, but as much air as possible should be admitted in mild dry weather, as they must not be forced too much.

Defend the beds of anemonies, ranunculuses, tulips, and hyacinths, from the severity of the frost, &c. by hoop arches and mats, this will enable the flowers to shoot more strongly; but the coverings must be removed every mild day. Although they will stand severe frost, yet their bloom is improved by this defence.

5.—*Carnations and Pinks.*

The fine carnations and pinks, which were planted in pots, and plunged into beds, under frames and glasses, must be protected as auriculas and anemonies, in No. 4.

6.—*Sow Auricula and Polyanthus Seeds.*

Auricula and polyanthus seed may be sown any time this month. The seeds to be sown in large pots, filled with light rich earth, and covered about the eighth of an inch deep; then place them in a hot-bed frame, at work; give them frequent light sprinklings of water, both before and after the plants appear; also give them air at all favourable opportunities, and the seedlings will be strongly advanced by the middle of May. When

all danger from frosts is over, the pots may be taken out of the frames, and placed where they may have the morning sun till 10 o'clock, and the afternoon sun after five, during the remainder of the summer The mid-day sun must be carefully guarded against, as it would destroy the plants.

Snails and slugs being fond of these plants, whilst in a seedling state, previous to setting the pots under the frames, make lines of short coarse, strong hair, about an half inch diameter, tie these round each pot, immediately under the rim, trim the long loose hairs around it to a quarter of an inch in length, which, when the snails or slugs approach the prickly hairs will check them, and protect the young plants from their ravages, otherwise they would be eaten up in a few hours.

7.—*Tender Annual Seeds.*

The latter end of this month will be a suitable time, to prepare for sowing many kinds of tender annuals; such as the fine kinds of double balsams, tricolors, ice plants, Browalias, sensitive plant, Ipomea Quamoclit, &c.

For this purpose, provide some new horse-dung, let it be thrown up in a heap, and remain for eight or ten days, when it will answer to make the bed; the dung should be spread about three feet thick, and the bed made as directed in Kitchen Garden, page 8, No. 5, and treated as there directed.

The seed may be sown in drills, each sort separate, and covered about one quarter of an inch with light rich earth. But if you intend to sow them in pots, and have the convenience of tanner's bark, lay on eight or nine inches, or a foot deep of it, all over the bed, in the place of the earth, to plunge your pots therein, in which case, two and an half feet of dung will be sufficient.

After the plants appear above ground, treat them as directed for melons and cucumbers, Kitchen Garden, page 10; or if there is room in the hot-bed of melons and cucumbers, they may be placed therein. For the continuation of the requisite care, see March and April.

8.—*Ten-week Stock and Mignonette.*

The ten-week stock is a beautiful annual both for pots and borders; it continues in bloom a long time. The mignonette imparts a delightful fragrance, for which it is highly prized.

The seeds of these may be sown in a slight hot-bed, towards the end of this month. Sow the seeds either in pots, or on the surface of the bed, and cover them with right dry earth, about the eigth of an inch deep, carefully protecting and treating them as heretofore directed for hot-bed plants. Towards the latter end of April, the ten-week stocks may be planted, where they are to remain. The mignonette being very delicate, ought to be taken up with as much earth as possible about the roots, and so transplanted with the greatest care.

9.—*Stock-gilly flowers and Wall-flowers.*

The choice double and other stock-gilly flowers and wall-flowers, although they may be considered as semi-hardy, yet they will answer better to be taken under the protection of a suitable covering; but if they should be frozen, they must not, in this state, be exposed to the strong rays of the sun.

10.—*To force early Flowers.*

When early flowers are required for ornament or sale, preparation should be made for this in October, and then plant in suitable sized pots, the various kinds that you intend to force; such as carnations, pinks, sweet-williams, double daisies, and other fibrous roots. Hyacinths, early tulips, jonquils, narcissuses, crocusses, anemonies, ranunculuses, and many other flowering bulbs: these having been treated, as directed in October, &c. you may, about the beginning of this month, plant these pots in any forcing department, such as hot houses, forcing houses, hot-beds, &c. by plunging the pots into the bark pits or hot-beds, they will flower the sooner. As the hy-

acinths, carnations, and pinks advance, tie their flower stems to neat sticks, stuck into the pots for that purpose.

Pots of roses, honeysuckles, jasamines, double flowering almonds, cherries, peaches, and thorns, also any other early flowering and desirable plants, may be forced in the same manner.

Southern States.

In the southern states, annual, biennial, and perennial flower seeds may be sown in this month. It is also a suitable time to transplant the various kinds of fibrous-rooted flowering plants, to plant out into the pleasure grounds, all kinds of deciduous trees, flowering and ornamental shrubs, and, in short, to perform all the works directed in the pages of this or next month, in the different departments.

FOR MARCH.

1.—*Hyacinths and Tulips.*

The choice hyacinths and tulips will still require similar attention, to that directed last month; they may now be covered, in frosty weather, with mats supported by hoops. Should any of the leaves of the tulips be cankered, cut the part out with a knife, and expose the wounded part to the sun and air; it will soon heal; a fine dry day should be chosen for this purpose. Loosen the earth of the beds to the depth of two inches.

2.—*Ranunculuses, Anemonies, and Bulbs of various kinds.*

Continue your attention to these plants, as directed in last month. Finish planting all the ranunculus and anemonie roots, which you have reserved out of ground, from the October planting, which is the suitable time.

Both these roots, which are now planted (out of proper season) should be carefully guarded against wet and frost.

Should you have any hyacinths, tulips, polyanthus, narcissus, star of Bethelehem, jonquils, spring crocus, &c. &c. out of the ground, plant them as soon as possible, as they will be greatly weakened.

3.—*Auriculas.*

Your auriculas in pots, should be protected from cold rains or cutting winds, but let them have the free air in mild days, and if the pots are dry, refresh them with a little water occasionally. Pick off all exterior decayed leaves, and remove about one inch of the surface of the earth out of the pot, filling it up with compost No. 1, described in Shrubbery, page 254. The off-sets which appear to have a sufficiency of roots, may be taken off, at the same time planted in small pots, and placed in a frame, until the latter end of April.

4.—*Carnations.*

If your carnations are of the superiour kinds, they will deserve to be potted, and treated in the following manner.

Prepare compost for them, by procuring one half fresh loamy earth, taken from a rich pasture ground: one third, or a little more, of manure, such as has been previously used for hot-beds; about one third coarse sand.

These ingredients must be prepared in the fall, laid in a heap two feet thick, in an open exposure, and turned three or four times during winter, so that all the parts

may be well incorporated, and have the benefit of the frosts. Early in March, gather it into a round heap to drain, and when sufficiently dry, pass it through a coarse screen or sieve.

The pots made use of to plant these into in the spring, should be ten inches wide at the top, five at bottom, and eight deep, with a hole of an inch diameter at the bottom.

In all cases the hole at the bottom of pots, should be covered over with an oyster shell, with its hollow side downwards. In these pots, three plants may be set in the above compost, from those which have been taken care of through the winter; where three are planted in a large pot, the bloom is much more interesting, than when planted singly in smaller pots.

After planting, they are to be watered gently, and taken the same care of, as heretofore directed, by securing them from frost, &c.

5.—*Pinks.*

If you desire to have a few of your finest pinks in pots, you may treat them as directed in No. 4, for carnations, but as they are hardier, and not so liable to casualties they may be planted out from the pipings, layings, slips, or seedlings, in October, in the place where they are to remain, for the next year's flowering.

6.—*Polyanthus.*

The finest polyanthus, and double primroses, may be treated in every respect as directed for Auriculases, if desired to be in pots. If they are intended for borders they may be removed between the middle and latter end of this month, and the large roots divided for increase; but this should not be done, to those which are expected to flower strongly, till their bloom is over. They love shade and moisture. Summer droughts and heat frequently destroy them.

7.—*Sowing Auricula and Polyanthus Seeds.*

Auricula and Polyanthus seeds. to raise new varieties. may still be sown, see No. 6 of last month.

8.—*Double Daisies.*

These modest little flowering plants may, about the end of this month, be planted for edgings, in *shady* borders. The smallest slip with fibres will shoot freely. Those in pots, particularly, would have answered better to have been planted in September or October.

9.—*Pricking out early Annuals.*

Such tender annuals as were sown last month, as cocks-combs, tricolors, ipomeas, sensitive plants, balsams, &c. must, in order to have them in perfection, at an earlier period than common, towards the middle, or latter end of this month, be pricked out, into a new hot bed, to forward their growth, give air, &c. as before directed for hot bed plants.

Keep up the heat of the hot bed, by occasional linings of fresh dung. These tender annuals may thus be continued in a sound state of vegetation, till May, when they may be finally transplanted, in the places, where they are to remain.

10.—*Sowing tender Annuals.*

A hot bed may be made the beginning of this month, in which to sow the seeds of tender annuals, such as the ice plant, sensitives plant, &c. &c. See list of Annuals, January, table III. page 283. Make the bed and sow the seeds, as directed No. 7, last month.

The plants raised from the above sowings, and treated with proper care, will blow strong in June, July, August, &c.

11.—*Hardy Annuals.*

Any time this month, when the ground is rightly prepared, in the borders, and other flower compartments, sow a variety of hardy annuals. See January, Table I. Hardy annuals, page 277. Although most of them will succeed, if sown early in next month.

These should be sown, each kind separate, in the different flower beds, borders, &c. finally to remain where sown, as many of them are impatient of being transplanted.

12.–*Sowing Perennial and Biennial fibrous rooted Plants.*

Many kinds, are proper to be sown now, such as carnations, pinks, sweet-williams, wall-flowers, stock-gilly flowers of all sorts; also rose campion, scarlet lychnis, scabious, Canterbury bells, &c.

The seeds of holly hocks, French honey suckles, rockets, honesty, tree primrose, fox glove, &c. with seeds of most other sorts of biennials and perennials, may now be sown. For list of these, see January, Table IV, &c. page 284 and 285.

The seeds of all the hardy biennial and perennial flowering plants, are to be sown, in beds of light earth, in the open ground.

13.—*Transplanting Perennial Plants.*

Where there are vacancies, in any of the beds, borders, or other parts of the garden, they may now de filled up, by taking off slips, from the different kinds of perennial and biennial flower plants, which will all blow in the summer and autumn.

Lychnis, rose campions, rockets, campanulas carnations, pinks, sweet-williams, perennial sun flowers, columbines, Canterbury bells, fox gloves, lobelias, irises, bee-larkspur, valerian, &c. and most others of this kind.

Plant also dwarf fibrous-rooted flowers in the borders, &c. they will take root freely in a short time; such as London pride, violets, thrift, primroses, hearts-ease, lily of the valley, &c. &c.

Give water at planting, and afterwards occassionally, in dry weather, till the plants are fully rooted; by which, they will grow freely, and flower the same year, in their proper seasons.

14.—*Plant Rose Trees.*

You may plant rose bushes any time this month, that the weather will permit: there is a particular advantage in planting some, every ten days: until the middle of May; as the flowering of them, by this method, may be retarded, for a much longer period, than if all were

planted at the same time. Should the weather prove dry, the later plantings will require shade and frequent watering, for some time after they have taken fresh-root. The early planting will flower in the greatest perfection.

15.—*Remarks.*

Directions, for pruning, planting deciduous flowering shrubs, ornamental and forest trees, will be found in Nursery and Shrubbery.

Planting evergreens, box edgings, and particulars respecting lawns and gravel walks, may be seen in Shrubbery.

FOR APRIL.

1.—*Hyacinths and Tulips.*

The earlier kinds of hyacinths will being to bloom in the beginning of this month, and the earlier kinds of tulips, towards the latter end thereof. The finer sorts of each of these, should he screened from the powerful influence of the sun, by mats or awnings, which will preserve their bloom in greater perfection, and keep them longer. As they advance, support them with suitable sticks, and fasten them with green woolen yarn. The awning should be totally kept off, or rolled up, at all times, except when the sun is powerful.

2.—*Ranunculus and Anemonies.*

April and May showers are essentially necessary to the perfection of the growth and vigor of these plants,

as well as to the improvement of their bloom, and should these showers fail, soft water must be given frequently and very moderately, observing not to sprinkle it over the stems or buds, which would injure them.

3.—*Auriculas.*

The middle of this month, the auriculas will be shooting in their flower stems. When any plant shows more than one flower stem, pinch off the flower buds of the smallest and weakest, that the remaining stem may have all the vigor of the root.

When the flowers begin to expand, the farina or mealy dust, which overspreads and ornaments these flowers, contributes exceedingly to their lustre and beauty, the least shower of rain would wash it off, or it may be blown away by the wind; the strong glare of the sun would cause the flowers to fade. They must therefore be carefully protected from being injured thereby, placing the pots of plants on a stage, and covering them occasionally with canvass or mats. Examine them daily, and water such pots as require it. In doing this, do not sprinkle any water on the flowers, which would materially, deface their beauty. Some of the finest polyanthus in pots may be placed on the stage with the auriculas, which will form a pleasing variety.

4.—*Increasing Auriculas by Slips.*

April is the most eligible time to transplant auriculas in order to increase them by slips, which should be done very soon after their bloom is over, and repeated annually; for by this means you not only preserve the plant in vigor, but increase the valuable sorts. When they are taken out of the old pots, shake the earth from the plants, shorten the fibres, which have grown too long, cut off any decayed parts of the main, root which frequently occurs. After this plant one auricula, in each pot, which should be hard baked, seven inches in diameter at top, about five at bottom, and seven inches deep. Immerse the pots in water for at least six hours before using them;

let each plant be placed in the earth, within half an inch of the bottom of the outside leaves; give each pot a small portion of water after planting, and place them where they may have the morning sun till 10 o'clock, and the afternoon from four or five, but not under the drip of trees, until November, when follow the directions there given.

The compost proper for auriculas, is as follows:—One half rotten cow-dung, two years old, one sixth fresh loose earth, one eighth well rotted leaves, which is converted to earth, one twelfth river sand, same proportion moory earth, one twenty-fourth wood ashes.

This composition should remain in a heap for six or twelve months, turning it over every month or two, to keep it free from weeds, &c; and before using it, pass it through a coarse screen; or compost, No. 1, Shrubbery, may be used.

5.—*Requisite Attention to Seedling Auriculas.*

The seedling auriculas, when quite young, must be carefully screened from the intense heat of the sun in the day, and frequently refreshed with water.

The pots or boxes in which they are growing, should be removed to a shady border, in a place open to the morning sun till nine o'clock, but shaded the rest of the day, and water them frequently. When the plants have six leaves, take these out, and set them in pots or boxes filled with compost, about six inches asunder, and when grown so as to touch each other, they may be transplanted into separate pots, to remain all winter.

6.—*Palyanthuses.*

These may have the like treatment as the auriculas, and are propagated in the same manner.

7.—*Sowing annual flower Seeds.*

All the varieties of annual flower seeds, which are capable of arriving at perfection in the open air of our climate, may be sown in the early part of the month;

such as amaranthus tricolor, globe amaranth, China asters, annual and ten-week stock, princes' feathers, China pinks, &c. &c. For the general list, see table II. January.

8.—*Carnation and Pink Seed.*

Carnation and pink seeds may be sown any time this month, as it is from seed, that all new varieties are obtained, you should sow some every year; for should you obtain one superiour variety from each sowing, it will amply compensate, as this may afterwards be abundantly increased by layers or slips. The fine double kinds seldom produce seed, but semi-doubles, do plentifully; from the seeds of the latter, especially when growing near the finest varieties, valuable plants may be expected.

Although in the common way, the double kinds of carnations seldom produce seeds, yet the following method has proved successful. The farina, on the anthera of the male, when exposed to a moist atmosphere being too delicate to pass off, and impregnate the female stigma, to assist nature herein, take an oil flask, and after cleaning and drying it perfectly, cut off the neck close to the globe, drive four stakes into the ground, of sufficient height to support this glass; at the neck cross strings may be fastened to the stakes, so as to keep the flask secure; when the flower is fully expanded, cut off the petals close to the calyx, with a small pair of scissors, so as not to hurt the anthera or stigma; then introduce the mutilated flower into the glass, which is to be fastened also at the top by diagonal threads, tied to stakes; by this method, the female stigma will be impregnated, and support its fecundation. From seeds thus produced, you may expect a greater proportion of valuable flowers, than from the semi-double ones.

Prepare a small bed of good rich ground, to receive the seeds; sow them tolerably thick, the pinks and carnations separate, on the surface of the bed, and sift over them about one quarter of an inch of fine light earth.

If the weather should prove dry, water the beds immediately; the plants will soon rise, after which it will be necessary to keep them free from weeds, and water them occasionally.

9.—*Biennial and perennial flower Seeds.*

Most kinds of biennial and perennial flower seeds, that succeed in the open ground, may now be sown such as those mentioned last month, No. 12; for general list, see January, table V. page 285. These seeds may be either sown broad-cast or in drills; the beds of light rich earth, and covered evenly with fine light rich earth; the largest not more than from half to three quarters of an inch, and the smallest from an eighth to a quarter of an inch, and so in proportion.

10.—*Planting and propagating Perennial Flowering Plants.*

In the early part of this month, continue to remove and transplant most sorts of fibrous, and tuberous rooted, perennial flowers, and to slip, and increase many of them, by off-sets. Consult the list given in January.

A great number of perennial plants, may now be taken up out of the woods, fields, &c. and transplanted into the flower borders, and pleasure grounds, which will keep up a regular succession of bloom, during the whole summer and autumn.

Take the plants up carefully, with balls of earth about their roots, and planted where desired; then water them, and repeat it frequently in dry weather, till they begin to grow freely, they will flower, generally the same year, and those that are perennial, will reward your labours, by an annual display of their beauty, as long as you carefully protect them.

11.—*Double Daisies.*

Double daises may now be propagated, by dividing and slipping their roots. Plant them in shady borders, or in shallow frames, where they can be protected, from

the powerful influence of the summer sun, and also from the severe winter frosts.

12.—*Tube-roses, Double and Single.*

To have this fragrant flower in perfection, about the first of this month, plant a few roots, in pots of light rich mould, one in each, first stripping off the off-sets. The upper part of the roots, when planted in pots, should only be covered about a quarter of an inch deep; immediately plunge the pots, to their rims, in a hot-bed, and give but little water, if any, until the plants are up, and growing freely, but afterwards, they will require a good supply.

The time for planting these roots in the open ground, in the southern states, is between the first and twentieth of this month, in the middle states, the first week in May, and in the eastern states, towards the last of May.

Prepare beds of rich sandy loam, well trenched or dug, take off all the off-sets, and plant the roots in rows one foot asunder, and eight inches distant from one another therein, and cover their crowns, about an inch deep, with fine loose earth: they will require no further care, than to support their flower stems, and keep them free from weeds, till November, when the roots are to be taken up, and managed as then directed. The off-sets are to be planted, in like manner, to produce blowing roots for the next season.

13.—*Scarlet Amaryllis.*

The *Amaryllis formosissima*, scarlet amaryllis, or Jacobæa lily, is a flower of extraordinary beauty. The flower stems are produced towards the sides of the bulbs, generally not more than two, which rise successively, so that after the flower, produced on one side, is decayed, another stalk arises, nearly opposite, to succeed it; usually there is but one flower on the same stalk. The flowers are large, and of a very deep red; the under petals hang down, the upper curl up, and the whole flower stands nodding on one side of the stalk, making a most beautiful and grand appearance.

The management and season of planting, is in every particular the same as directed for the tuberose; it generally flowers in about a month after being planted, its bulbs do not ripen sufficiently, for taking up, before November. It is increased by off-sets from the roots, which are to be treated as those of the tuberose.

FOR MAY.

1.—*Hyacinth and Tulip Roots.*

When hyacinths are past-flower, let them always be fully exposed to the weather, except in very heavy torrents of rain, from which they should be protected.

About a month after the bloom is completely over, and when the foliage puts on a yellowish decayed appearance, take up the roots and cut off the stem and foliage, within an inch of the bulb, but leave the fibres, &c. attached to it; then place the bulbs again, and cover them about an inch deep, with dry sand in form of a ridge; or in small cones over each bulb; in this state they may remain about three weeks longer, to dry or ripen gradually; during which period the bed is to be preserved from heavy rains, or too much sun, but at other times exposed to the full air; at the expiration of this period, the bulbs are taken up, and their fibres, which are become dry and withered, cut or gently rubbed off: they are then placed in a dry room for two or three weeks, and are afterwards cleaned, from any earth that may adhere to them, their loose skins are taken off, with such off-sets as may be easily separated.

When this is performed, the bulbs are wrapped up in separate pieces, of paper, or buried in sand, made *per-*

fectly dry, for that purpose, where they are to remain till the return of the season for planting. The above is the Holland method.

As some of the tulips are yet in flower, continue to protect them as directed in last month.

As soon as the petals fall, immediately break off the seed vessel of each, for if suffered to remain, it would considerably weaken the bulb.

When the foliage becomes of a yellowish brown, not before, take up your choicest roots; as this is the critical period for such care, because if done earlier, they would be weak and pithy, and if deferred later, the colour of the next year's flower would be injured. After the roots are taken up, they are to be spread in a room, and gradually dried; observing to keep each variety of the superb kinds separate, that you may be enabled to gratify your fancy, in planting them. About five or six weeks, after the bulbs are taken up and dried, take off their loose skins; fibres and off-sets: after which they should be preserved in dry sand, chaff, or saw dust, or rolled up in separate papers till the time of replanting them.

Common hyacinths and tulips planted in the borders, &c. need not be taken up, oftener than once in two or three years, to separate the bulbs, and increase the stock.

2.—*Ranunculuses.*

During the period of the bloom of these flowers, they must be carefully shaded from the mid-day sun, and from heavy rains, by a suitable awning; for one day's hot sun, would despoil many of their beauty. Water them occasionally, round their roots, which will increase their size and substance. Let them have all the gentle refreshing showers of the season. Soe Flower Garden. June.

3.—*Anemonies.*

Anemonies, during the period of their flowering, require, occasionally, gentle waterings; they must not

only be sheltered during the time of their bloom, but, even after the show of their flowers is over, the roots must be protected from heavy rains, in order that the juices may return regularly into the root, and that its maturity may be more easily ascertained, by the decay of the stalk, yet it is absolutely necessary, they should be occasionally watered, with moderation, for some time after the state of blooming.

4.—*Early flowering Bulbs.*

By shading such beds, as have flowering bulbs, from the sun, their bloom and beauty may be continued longer.

Spring crocuses, snowdrops, fritillarias, crown imperials, and all other early flowering bulbs, that have done flowering, should, where intended, be taken up as soon as their leaves decay. All of these, which have not been removed for two or three years, should uniformly be taken out of the ground, in order to separate their offsets, which ought to be planted immediately. The best roots to be preserved, as directed for tulips and hyacinths, No. 1.

5.—*Autumn flowering Bulbs.*

Autumnal crocuses, amaryllises, and colchicums, should be taken up, as soon as their leaves decay, the off-sets separated, and all re-planted before the end of July; for if kept longer out of the ground, they would not flower in perfection in autumn.

6.—*Tuberose and Scarlet Amaryllis.*

The first week in this month, in the middle states, is the time for planting the tuberose and scarlet amaryllis —see April, No. 12 and 13.

7.—*Care of Seedling Bulbs.*

The boxes of seedling hyacinths, tulips, and other bulbous kinds, from the seed sown last autumn, should be sheltered from the mid-day sun, occasionally refreshed with water, and a light sifting of earth given them.

8.—*Auriculas and Polyanthuses.*

Immediately after your fine auriculas and polyanthuses have done flowering, slip them, and re-plant them in pots, as directed in last month. No. 2, 3, and 4.

9.—*Carnations and Pinks.*

The flower stems of the fine carnations in pots, will be advancing at this time. Neat substantial sticks, three feet long, should be forced into the pots, to tie the flower stems to, for their support. For further necessary care, see next month.

Pinks will require similar attention; both to be occasionally watered.

10.—*Transplanting Annuals, &c.*

Supposing most kinds of annual flower seed were sown last month (if not, they may be sown the first of this) the varieties of the early sowings, may be transplanted where desired, shading and watering them, till well rooted.

11.—*Propagating Double Scarlet Lychnis, and Garden Rocket.*

The double scarlet lychnis may now be propagated by cuttings from the stalk, or by slips from the root. Cut the flower stalks into lengths of six or eight inches, and plant them in a shady border of rich light earth, leaving one or two joints above ground: water them gently, and if it can easily be done, place hand glasses over them.

The garden rocket may be propagated in like manner.

12.—*Double Wall flowers and stock-gilly flowers.*

The fine double wall flowers and double stock-gilly flowers may be propagated by slips of the present year; take those of four, five, and six inches long, cut them off carefully from the mother plants, with a sharp knife, and take off the lower leaves, so as to have three or four inches of a clean stem to each; plant them in a shady

border, screening them from the mid-day sun, and water them occasionally.

The double varieties are accidentally produced from seed: it is very rare to raise a double wall flower from the seed; but the stock, especially the semi-double, produce the double kinds frequently The beginning of this month is the proper time to sow the seed.

13.—*The Amaryllis Sarniensis, or Guernsey Lily.*

The leaves of this beautiful flower, will generally decay, towards the end of this month, when the roots may be taken up, and the off-sets separated, and either replanted immediately in pots, or before the middle of July, as they flower in September or October. They must be carefully protected from frost.

14.—*Transplanting Perennial and Biennial Seedlings.*

Transplant the early sown biennial and perennial flower plants into nursery beds, till September or October, when they should be removed with balls of earth, where they are finally to remain for flowering.

15.—*Supporting flowering Plants.*

The momordica and some other plants, will begin to require support; give them sticks or other support, such as may answer their growth or disposition for climbing.

16.—*Necessary Care.*

More than ordinary care is requisite, to keep all the beds and borders entirely clear of weeds, especially those, where the small seedlings are.

FOR JUNE.

1.—*Hyacinths, Tulips, and early flowering Bulbs in general.*

Hyacinths, tulips, and all the different kinds of spring flowering bulbs, such as fritillarias, crown imperials, crocuses, snowdrops, &c. whose leaves are now decayed, may be taken up and treated, as directed in the Flower Garden for last month, page 311, No. 1.

2.—*Ranunculus and Anemonies.*

When the flower stems and foliage of these are brown and dry, vegetation has ceased, and it is then suitable to take up the roots, to prevent them from shooting afresh before the right time. When the roots are taken up, their stems, &c. should be cut off close, and they placed in a shady airy situation, free from wet, to dry gradually; previous to their being perfectly dry, they must be cleaned and separated; as they become very brittle, there is danger of breaking them improperly into too small pieces; it is best to leave the roots as large as well may be, although they can sometimes be separated into many complete roots, and yet they are so closely connected, as to have the appearance of a single root.

3.—*Hardy Autumnal flowering Bulbs..*

The beginning or middle of this month, will still answer to take up the yellow amaryllises, colchicums, autumnal crocusses, and such other autumnal flowering

bulbs, as have their leaves decayed. After drying them, and separating the off-sets, &c. they may be planted again, or kept till July, and then planted. It is not absolutely necessary, to take up these roots oftener than once in three years.

4.—*Guernsey and Belladonna Amaryllis.*

The roots of the Guernsey and Belladonna amaryllises, if their leaves are quite decayed, may be taken up, their off-sets separated and planted immediately in pots. They flower in October and November; they must be protected from the early frosts, and may be treated as greenhouse plants.

5.—*Cyclamen.*

There are five kinds of cyclamens; 1, round leaved spring; 2, European; 3, Persian spring; 4, Persian fall cyclamen; 5, ivy leaved cyclamen. These are all greenhouse plants. They should have as much air and light as well may be, yet preserved from frosts. The leaves being generally decayed about this time, the roots may be taken up, and re-planted immediately into a composition of one half good loamy earth, one fourth sand, and one fourth light moory earth, well incorporated together, for sometime before it is wanted.

The first and second sorts flower in January and February; the third in March or April; the fourth and fifth in September and October. They continue a long time in bloom. The pots which contain the plants, must not be exposed to the sun or much moisture during the summer months; for although they are at this time in a dormant state, they would be injured thereby.

The best method of increasing these, is from seed, which should be sown soon after they are ripe, or early in spring, and covered about half an inch deep; they must always be protected from frost and the summer sun. Any time in the summer of the second or third year, when the leaves are decayed, they may be treated as the

old roots and in the third or fourth year, with proper management, they will flower.

6.—*Carnations and Pinks.*

Your superb carnations and pinks will now be coming into bloom; they should be protected by an awning, from severe rains, and the extreme heat of the sun.

The methods of continuing a succession of particular sorts, which you already possess, are 1, by piping, or laying; 2, by slips, taken from them, in spring or autumn. It is a suitable time when the plants begin to show their flowers, to select the kinds for seed; from among the pinks, choose those which possess superior qualities, and let but one or two flowers remain on each stalk, breaking off the rest, that the whole strength of the plant may go into the remaining pods. As the double carnations, seldom produce seed, without the florist's assistance, see directions in April, page 308, No. 8.

7.—*Propagating Carnations, &c. by Laying and Piping.*

1.—*Laying.* When carnations, and Pinks, are propagated, from the shoots, connected with the parent plant, till after they have taken root, the operation is called laying. This is to commence, as soon as the plants are in full bloom.

Previous to laying, provide a number of wooden pegs, with a hooked end, a sharp pen knife, and some good compost earth.

A suitable layer, should have three, four, or five joints, the lower leaves next the root are all to be stripped off close, to within two joints of the extremity of the layer, the leaves are to be shortened, so as to be left about two inches in length.

The surface of the pot is then to be cleared, well stirred about one inch deep, and afterwards filled up, nearly level, with light rich compost. After this, make the incision, by introducing the knife, on that side the layer, next the ground, in a sloping direction upwards, to begin a quarter of an inch below the second or third clean

joint, from the top, and continue through the middle of that joint, and half an inch above it; the small part, left beneath the joint, to be cut off, close to the joint, but not into it, horizontally, yet not so as to wound the outer part, which preserves the communication of the sap; the fibres proceed from the outer circle of the joint. The layer is to be gently pressed down to the earth (be very cautious neither to break, or crack it at the joint) and to be kept there by one of the hooked pegs, before mentioned, which is to be forced into the soil, just behind the joint, where the incision was made, the layer is supported in such manner, that the slit may be kept a little open, a grain or two of wheat will answer this purpose. The joint from whence the fibres shoot, should be covered, with only an inch of compost. In five or six weeks time, from being laid, they frequently have roots, sufficiently strong, to be removed.

2.—*Piping*. Prepare a bed of fine, light mould, water it moderately, and mark with a hand-glass, the place in which to set the pipings, so to be planted, that when the glass is set over them, it may not touch them.

The cuttings to be piped, are to be cut off, horizontally, close under the second joint, the leaves also to be shortened, as for laying, which will leave the whole length of the piping two or three inches; they are then to be thrown into a basin of soft water for a few minutes. In this wet state, they are to be set in the earth about an inch and half deep in the circle marked by the glass; when a sufficient number, about two inches asunder, are set in the circle so as to admit the cover to be placed on, without touching them, they are then to be gently watered, and left exposed to the air, but not to the sun, until their leaves become perfectly dry; after which the glass is placed over them carefully, and the bottom edges to be forced a little into the earth, to keep out the effects of the external air, and to preserve a moist atmosphere about the pipings, till their young radicles are established, and begin to act; for if fully exposed to the air before

that period, it would carry off from the leaves, &c. a greater portion of moisture, than the young plants, in their present weak state, could imbibe, from the earth, and they must of course perish. This is the particular reason, why cuttings of every kind, succeed better, when thus treated, than when left exposed to the influence of the weather. They should have a small portion of the morning sun, but shaded from it, when the heat increases, by placing mats, on a frame of hoops, about two feet above the glasses. The glasses should be taken off, for half an hour at a time, early in the morning, or late in the afternoon, to admit fresh air, to prevent the plants from becoming mouldy.

When the fibres are formed, which the verdure of the plants will evidence, more air should be occasionally admitted, and when they become tolerably well rooted, the glasses may be taken away; continue to water them frequently, but moderately, as they progress in growth.

Some sorts of carnations succeed much better by piping, than by laying, and make healthier plants: experience alone can enable the gardener to determine.

The directions given in article 2, on piping, will answer for the cuttings of delicate exoticks, as well as cuttings of all kinds of plants, which are so propagated: and whenever cuttings are planted, the above directions may be followed.

All fibrous rooted plants may be propagated by cuttings, as the double scarlet-lychnis, double rocket, phloxes, with many others, by cuttings of the flower stalks, managed as directed above.

8.—*Planting Carnations and Pink Seedlings.*

As it is supposed, that some seed from each of these flowers, are sown every year, to procure new varieties; therefore those sown early in spring, may now be planted into nursery beds, in rows, ten or twelve inches asunder, there to remain until they show their flowers, when the single, and less valuable, may be pulled out, the best marked for laying or piping, and the others planted out.

9.—*Propagating double Sweet-Williams.*

The fine kinds of these, may now be propagated, either by slips, or layers. But as they are so easily raised from seeds, of which they produce abundance, in the middle states, it is recommended, to sow the seed, for new varieties, and only slip, lay, or part the roots of the best.

10.—*Transplanting Annuals.*

The different kinds of annuals, which will bear transplanting, may now be taken from places where they stand too close, and planted elsewhere, such as French marigold, China asters, China pinks, China hollyhocks, cocks combs, chrysanthemums, balsams, amaranthus of various sorts, gomphrena globosa, and many other kinds, plant them in moist or cloudy weather, taking up as much earth as possible about their roots, and give them shade, and frequent waterings, until they evidence that they are newly rooted.

11.—*Thinning, and Supporting Flowering Plants.*

Annual flowering plants, the seeds of which have been sown in patches, and have grown too thick, must be thinned, to proper distances, according to their respective habits of growth, so as to allow them full space, to attain the utmost perfection.

Support the various climbing plants, as directed in May, No. 5.

Cut off close to the grouud, all decaying flower stems of perennials, except such as are intended to save seed from; clear off all dead leaves, weeds, &c.

Trim, dress and tie up all plants which require it.

12.—*Transplanting Seedling Perennials and Biennials.*

Transplant from the seed-beds, the early sown perennial and biennial seedling plants, that are grown to a sufficient size; such as sweet-williams, sweet-scabious, rose campion, Canterbury bells, and monk's hood; soapwort, asters and rhexias; corœpsis, dracocephalums, &c.

Plant these out in suitable beds, of good earth, by line, six inches every way, water them immediately and repeat it frequently, giving them occasional shade from the hot sun, until they have taken root. They are to remain in these beds, until autumn, or spring, and then to be planted out finally, where they are to remain.

13.—*Stock Gilliflowers and Wall Flowers.*

Stock gilliflowers and wall flowers are not sufficiently hardy to bear the winter frosts of the eastern or middle states; therefore it will be necessary, to plant the seedlings of these kinds, in some convenient place, where a garden frame may be set over them, in winter, on which to lay boards or any slight covering for their protection, as directed in November, which see.

14.—*Additional Remarks.*

The flower borders, beds, &c. and all other ornamental compartments, must now be kept remarkably clean and neat, and no weeds suffered to grow to any considerable size, in those places.

Occasional waterings must be given, to all your late planted shrubs and flowers, particularly to the annual, perennial and biennial flower plants, newly planted into nursery beds.

Your entire stocks of plants, in pots and boxes, seedlings, and others, must be watered as often as the earth about them becomes dry, and there must be due attention given to these to preserve them through the season.

FOR JULY.

1.—*Bulbous and Tuberous Roots.*

Such bulbous roots are now to be taken up, as were not sufficiently matured, nor their leaves decayed last month, so as to be suitable to be taken up then, as ornithogalums, bulbous irises, martagon, and other lilies. Plant the roots of fritillarias, crown imperials, dens canis, and such other bulbous and tuberous rooted flowers, as do not endure to be kept long out of the ground; and this being the season, when the roots are not in action, is the most suitable time for transplanting them.

The crown imperial may be treated as follows; lay a large fresh cow dung, in the place, you design to set the crown imperial, then in the centre fix the root, crown it with another large fresh cow dung, after this cover the crown of the plant, about six inches with light rich earth.

2.—*Carnations and Pinks.*

The choice carnations and pinks should be attended to, as directed in last month. Continue to propagate them, by layers and pipings, as directed in June, No. 7.

When the layers are properly rooted, which will be the case with most sorts in four or five weeks after laying, provided they have been kept regularly moist, and screened from the heat of the mid-day sun; they are then to be taken off from the parent plant, with about half an inch of the stalk, which connects them, and immediately planted in pots, one, two, three or four in each. The pots should be filled with the compost heretofore recommend-

ed, and when they are planted, the pots should be buried to their rims, in a convenient airy place, and arches of hoops placed over the bed, on which to lay mats, to shade the plants from the sun, till well rooted, and growing freely; also to protect them from heavy torrents of rain.

Here they are to remain till November, when they must be removed into their winter department. Other layers may be planted in beds of rich earth, where they are to remain till September, when they may be taken up and planted where they are to flower. Pinks may be managed in the same manner.

3.—*Sensitive Plant.*

The sensitive plants, which have been raised in hot-beds, may about the first of this month, be brought out into the open air, and placed in a very warm situation, for they delight in much heat. Some ought to be kept constantly under glasses, for when fully exposed to the weather, they lose much of their sensibility.

4.—*Dionæa Muscipula.*

The *Dionæa muscipula*, or Venus' fly trap, is one of the most extraordinary productions in the vegetable world. Each leaf is divided, as it were, into two joints, the lower part flat, longish, two edged, and somewhat heart shaped; the upper joint consists of two lobes, each semi-oval, the margins furnished with stiff hairs, like the eye lashes, locking into each other, when the lobes close like the teeth of a rat trap, to which the lobes, marginal hairs, and the manner of their closing, bear a particular resemblance. The interior of the lobes is very irritable in warm weather, at which time, if an unfortunate fly happens to creep in it, the lobes immediately fold up and confine it; the greater the efforts made by the insect to disengage itself, the more it irritates the interior parts, and consequently is the more firmly secured, where it remains until it perishes. When the irritation having

ceased, the lobes open as before. The observer, by introducing a small feather between the lobes, will be amused with their closing upon it.

This plant is a native of South Carolina and Georgia, where it produces in July and August, bunches of handsome white flowers, on stems of from six to eight inches high. In the eastern and middle states, it will be best to treat it as a hardy green house plant, although it has stood the winter in the garden of the House of Employment of Philadelphia.

It is propagated both by seeds and off-sets, which last are to be separated and planted in this month, in a swampy soil, with a mixture of fine sand, to be well watered and shaded in the summer months. The seed to be sown on a hot-bed early in the spring, and forwarded with care until the summer, when to be managed as before directed.

5.—*The Tutsan Leaved Dog's Bane.*

The *Apocynum Androsœmifolium*, or tutsan leaved dog's bane, is interesting, not only on account of its beauty and fragrance, but also on account of the curious form of its flowers, and their singular property of catching flies.

It is a hardy perennial, indigenous in several of the United States, flowering from the beginning of July to September. It is propagated by sowing the seeds in spring, which it produces abundantly in its native soil, or by parting its roots in March or October.

6.—*Auriculas and Polyanthuses.*

When any dead leaves appear on your auriculas and polyanthuses, let them be immediately picked off, and suffer no weeds to grow in the pots.

Preserve them carefully from the mid-day sun, which at this season would destroy them; keep the earth in the pots always moderately moist.

The auricula and polyanthus seedlings, that were sown last autumn, if they have grown well, and are of suffici-

ent size, should be planted into boxes or pots, in the last week of this month, or the first in August, and placed in the shade, to grow till the middle of October, when they may be more exposed to the sun, and early in November, taken into their winter quarters.

7.—*General Observations.*

Clean all the borders and flower beds from weeds, and every thing which disfigures them.

Stake and tie up the flowering stems of such plants as stand in need of support, to prevent their being borne down by winds, heavy rains, &c.

Cut down the stems of such fibrous rooted plants, as have finished their bloom, except where the seeds are wanted; all such ought to be removed as soon as possible, as their appearance is unpleasing. By this means, the plants, though past flowering, will appear more lively, and the bloom of the others will show to greater advantage.

FOR AUGUST.

1.—*Carnations and Pinks.*

TRANSPLANT the layers and pipings of carnations and pinks, which are sufficiently rooted, and treat them as directed in July, No. 2.

2.—*Auriculas and Polyanthuses.*

Such of the choice auriculas, as were not put into new pots in April and May, may now be so transplanted. For suitable compost, &c. see page 307.

You may take off any strong slips, that have fibres attached to them, and plant them as there directed. All

the auriculas will require at this season, to be screened from the mid-day sun, but have the benefit of the morning sun till nine o'clock, and that of the afternoon after four.

Polyanthuses require similar attention as the auriculas.

Transplant the seedlings of both, as directed for auriculas seedling in April, page 307.

3.—*Transplanting Seedling Biennials and Perennials.*

Transplant into nursery beds, the young plants of the various kinds of biennial and perennial flowers, that are of a proper size, or they may be planted, where they are finally to remain. The wall flower and stock gilliflower, in the middle states, requiring protection in winter, attend to directions given June, No. 13.

4.—*Removing Pœonias, Flag Irises.*

This month take up, separate, and transplant the roots of pœonias, flag irises, or any other hardy kinds of tuberous rooted flowers, whose leaves are now decayed. When the roots are taken up, the small off-sets should be separated and planted in beds for an increase; the large roots re-planted where designed to flower. Each kind to be planted from three to four inches deep.

5.—*Propagating Fibrous Rooted Perennial Plants.*

Most of the early flowering fibrous rooted plants, whose flower stems were directed to be cut down in June or July, will, in the course of the month, send forth new suckers from the roots; such may be carefully taken off, and planted in nursery beds, or the whole roots may, towards the end of the month, be taken up, and divided into many plants, taking care that each one be furnished with roots. Trim them neatly before planting, and set them in a shady border, where they can be covered with mats, &c. till rooted. Water them immediately, and repeat it occasionally, till they are in a full growing state.

Pinks, sweet-williams, rose campion, scarlet lychnises, primroses, double daises, double perennial catchfly, phloxes, campanulas, violets, dracocephalums, and various other kinds may now be propagated in this way.

6.—*Seeds of Bulbous Rooted Flowers.*

The seeds of tulips, hyacinths, narcissuses, irises, crown imperials, fritillaries, and lilies, or of any other kinds of bulbs, whose seeds are ripe, may now be sown, in order to obtain new varieties. These, if sown as soon, after being ripe, as they are sufficiently dry and hardened, will vegetate the ensuing spring; but if kept out of the ground till spring, very few of them will come up for a full year after.

Sow the seeds separately, in boxes filled with good garden mould, till within two or three inches of the top, which should be of compost—No. 1, Shrubbery, page 254, or of that in Flower Garden, April, page 307. Sow the seeds thick, and cover them with compost about half an inch deep. The depth of earth in the box, should be at least one foot; the bottoms of the boxes perforated with holes, each about an inch in diameter, and covered with shells, to allow the extra moisture to pass off. The boxes to be placed in a warm situation, kept free from weeds, and protected from frost by a slight covering of mats, till the spring, when the plants will appear. Early in May, place the boxes in the shade, but not under trees, and in dry weather, give them a very small portion of water. In June, when the leaves are decayed, sift half an inch of fresh earth over that in the boxes, and on the approach of winter, protect them from frost as before. Continue the same treatment, winter and summer, till the month of July, in the third year; the roots may then be taken up, dried, and treated, as directed for large bulbs or offsets—see May, page 311. A few of the strongest roots will flower the fourth year, about one half may flower the fifth, and in the sixth year, every healthy root will bloom. In this method, all the curious varieties are raised, and

if one valuable new flower is produced from hundreds thus propagated, the florist exults.

7.—*Plants in Pots.*

Such plants as are in pots, require to be watered frequently; some kinds requiring it twice a day, in very dry weather, others once a day; a few sorts not so often. There is a surprising difference in the constitution of plants, with respect to the consumption of water, some absorbing and discharging it quickly, others very slow; you must therefore be governed by circumstances, in your supplying them with water.

8.—*General Observations.*

Give water as often as necessary, to all the young plantations of herbaceous flower roots; cut down the stems of such as are past bloom; loosen the earth in the tops of all the pots, containing flowering plants; trim and tie up any loose or straggling plants.

Gather flower seeds as they ripen, and preserve them till the season of sowing; most kinds will keep better in their pods or husks, than when rubbed out.

FOR SEPTEMBER.

1.—*General Remarks.*

All beds, borders, &c. are to be kept clean from weeds and neatly raked. The digging of vacant beds and borders, to be attended to, for planting bulbous roots, and the biennial and perennial fibrous rooted flowers. Collect all such seed, as may now be ripe.

Prepare now at all leisure hours, the different beds, borders, and composts, for the plantations of choice tulips, hyacinths, anemonies, ranunculuses, and other flower roots, which are to be set out next month; also for the flowering shrubs, that no business may be unnecessarily hurried or slighted.

2.—*Pinks and Carnations.*

The layers of pinks and carnations, as well as the pipings, which are well rooted, not before taken from their parent stock, may now be separated, and planted out in pots or borders.

The seedling pinks and carnations may now be planted out, where they are intended to remain; take each plant up with a ball of earth, and give it some water, after setting it in the ground.

3.—*Chrysanthemums.*

In the beginning or middle of the month, plant cuttings or slips of the young shoots, five or six inches long, of some of the best double sorts, planting several together in large pots, to be protected through the winter; they will strike root, and form proper plants, to transplant for early flowering next summer.

4.—*Auriculas.*

The auricula plants require the same attention, as heretofore directed; protected from the mid-day sun, moderately watered, &c. Particular care must be taken to keep both the seedlings, and the old auricula plants, free from weeds of every kind, to keep the earth in which they are planted, in a moderate state of moisture, that the plants may grow freely, and obtain strength before winter.

5.—*Ranunculus Aconitifolius.*

The double flowering variety of the aconite-leaved crowfoot, or fair maid of France, is greatly esteemed for

the delicate beauty of its numerous flowers. It is perfectly hardy. The flowers are a pure white, and very double: the root is perennial, and composed of many strong fleshy fibres, like that of the garden ranunculus, and increasing in the same manner.

This beautiful plant flowers in the latter end of May, and beginning of June, and may be propagated by taking up the roots, at any time after the leaves decay, separating the off-sets, carefully preserving the crown unhurt, and planting them in good garden earth, covering the crown about two inches with earth. If planted in pots, they will require some protection, and but little water, in winter. This plant has a beautiful appearance, when in flower, in rooms and windows, as well as in borders and beds.

6.—*Sow Seeds of Bulbous Roots.*

The seeds of hyacinths, tulips, and other bulbs, may now be sown, as directed in last month, page 328 which see.

7.—*Hardy Annuals.*

Larkspurs, persicaria, adonis, &c. may be sown, in borders, the latter end of the month, to come up early in the spring, in the places where they are to remain.

8.—*Transplant Biennial and Perennial flower Roots.*

The various kinds of biennial and perennial seedlings may be planted out, the latter end of this month, from the flower nursery, into the borders, &c. where they are designed to bloom.

Also plant out double catch fly, pinks, London pride, dracocephalums, sweet-william, thrift, scarlet lychnis, double rose campion, double rocket, and every other kind of hardy fibrous rooted perennials, that are past bloom.

Cut down decayed stalk of perennials, and if they are not to be transplanted, bring some well rotted dung to

the borders, and dig the ground about them, which will refresh and strengthen their roots.

9.—*Planting Bulbous Roots.*

Spring crocuses, snowdrops, fritillarias, the various kinds of irises, scarlet martagons, white and red lilies, crown imperials, (for the method of planting these last, see directions in July, page 322, as well as all other flower bulbs, which do not agree with being kept long out of the ground, should now be planted.

Common tulips, hyacinths, narcissus, and other hardy spring flowering bulbs in general, may now be planted in borders, &c. in small clusters, four or five in a place, covering the roots four or five inches deep with light loose earth.

10.—*Tuberous Rooted flowering Plants.*

Pæonias, flag irises, winter aconite, &c. may now be propagated by slipping their roots.

11.—*Hydrangia Hortensis.*

The garden hydrangia, a beautiful flowering plant, may now be taken out of the old pot, its slips taken off, and all re-planted again in pots, and protected in the green-house, or other shelter, through the winter.

12.—*Double Daisies.*

Some of the choicest of these modest little flowers, may be taken up, with balls of earth to their roots, planted in small pots; water them immediately, and screen them from the sun, for a week or two, afterwards place them in a warm exposure till November.

FOR OCTOBER.

1.—*Planting Bulbous Roots.*

The best soil for these roots, is a black loamy kind, with the addition of a little coarse sand, placed round the roots, when planted, manure with rotten cow-dung, two years old at least.

If not planted last month, defer it no longer than the beginning of this, to put in the ground polyanthus, narcissus, jonquils, irises, star of Bethlehem, martagon lilies, spring crocuses, snowdrops, starry, musk, feathered, grape, and other hyacinths.

White lilies, pæonies, and crown imperials, (the last planted in cow-dung, as before directed;) these three last do not require to be taken up, oftener than once in three years, and then only to separate their off-sets.

2.—*Superiour Tulip Roots.*

To have these in the greatest perfection, the earth should be taken out of the bed, about twenty-four inches deep; fill twenty inches of this with a stratum of two years old rotten cow-dung, and fresh, rich, light earth, one half of each, thoroughly incorporated together; upon this is to be spread a layer of the same rich earth, two inches thick at the sides, and three in the middle of the bed, which will give it a small convexity.

The bed should be thus prepared a week or ten days previous to planting the roots, to allow it time to settle,

so that, when it is completed, it may be two or three inches higher than the walks. Should heavy rains occur between this preparation and the planting, it will be proper to keep them off, to prevent the earth from becoming too compact, by the redundancy of moisture, for the young fibres to shoot freely through it.

When the roots are to be planted, rake the surface of the bed smooth, still preserving its equality; lay it out in squares, seven inches every way, and in the angles of the squares, lay some clean sand, on which set the roots with great exactness; when they are all placed, envelope each root with a small cone of sand, then sift about five inches of rich mould over them, still preserving the original convexity of the bed.

The earth which you use, should be free from all kinds of insects, and if the whole had passed through a sieve, this would be most likely to be the case.

3.—*The Finest Hyacinths.*

Your finest hyacinths may be managed in the same manner, as the superb tulips, or you may use the following compost over the dung and earth above directed.

One third river sand; one third fresh sound earth, the best in the garden, entirely free from noxious vermin of every description; one fourth rotten cow-dung, at least two years old; and one twelfth of the earth of decayed leaves. These should be well mixed and incorporated together, a considerable time before wanted, and about ten days previous to planting, twelve or fifteen inches of this earth should be put in the bed, and the roots planted with sand, and then covered, as directed for the best tulip roots. The beds of these, and also of the tulips, to be arched over with hoops, and to be protected from heavy rains, snows, and the most rigorous frosts, by a covering of mats, but when the weather is not very inclement, to be allowed the free air; slight frosts, which do not reach the bulbs, will not injure them.

4.—*Auriculas, Polyanthuses, and Primroses.*

The choice auriculas, polyanthuses, and double primroses in pots, must now be kept very clean, all decayed leaves picked off frequently, and moderate waterings given, as often as necessary, that the plants may attain due strength before winter.

The seedling plants of each, must be kept free from weeds, and every kind of filth, also to receive regular, gentle, waterings.

For the further requisite treatment of them, see Flower Garden, November.

5.—*Planting Ranunculuses.*

In favourable situations, and where due attention can be paid to the protection of the roots, from severe frosts, the early part of this month is the most suitable time for planting ranunculuses, as the roots will have more time to vegetate, they will of consequence, bloom stronger, and earlier, than those planted in spring.

They are partial to coolness and moisture, exempt from wet and frost, which the more delicate sorts cannot bear.

The stratum of the bed should be dug out two feet deep, and about ten inches of fresh light earth thrown therein, in the place of the earth so removed; then add a stratum, eight inches thick, of two years old rotten cow dung, mixed with earth, each equal quantities, well incorporated together, carefully spread over the dung, &c. about four inches of fresh, strong, rich, loamy soil, which is preferable to all others for these roots. Rake the surface perfectly even and flat, and plant the roots in rows, at the distance of six inches from each other, with their claws downwards; previous to planting them, sprinkle a little sand over the surface of the bed, then cover the roots exactly one inch and an half deep, which is the only true depth to ensure a good bloom. They must be protected from the severe frosts of the winter.

6.—*Anemonies.*

Anemonies require the same treatment as ranunculuses and may be planted in autumn with more safety; the beginning of this month is the proper time. The beds should be of the same kind of soil, and be prepared in the same manner as for ranunculuses, but they must be covered two inches above their crowns.

The roots, in general are rather flat, and their eyes, from whence the stems and flowers proceed, are easily distinguished on one side of the root, which of course should be planted uppermost. See November and December, for further directions.

7.—*Biennial and Perennial Roots.*

Biennial and perennial roots may still be planted in this month.

8.—*Double Daisies, Primroses, Polyanthuses, and common Auriculas.*

About the middle of this month, prepare a warm border, to plant the double daisies in, which were preserved in shaded situations, during summer; the bed should be raised four or five inches above the common level, and surrounded with a frame; take up the roots, with balls of earth, and plant them in rows, six inches apart every way, give them water immediately, and shade them from the sun for a week or two.

Primroses, polyanthuses, and common auriculas, may be treated in the same manner. See November and December.

9.—*Stock Gilliflowers and Wall Flowers.*

Any double stocks, and wall flowers, that are growing in beds, or borders, should be planted in pots, the beginning of this month, if not done in the last; place them in the shade for three weeks, and to be then removed to a warm aspect, until they are secured for the winter.

10.—*Planting Bulbous Roots in Pots and Glasses.*

In the beiginning of this month, some hyacinths, polyanthus, narcissus, early tulips, crocusses, and snow drops,

may be planted in pots, to force them into an early bloom in winter, cover them generally, with about one inch of earth above their crowns.

When the roots are planted, the pots are to be sunk to their rims in a garden frame, kept gently moist, but protected from heavy rains. The glasses are to be kept off, except in rainy weather, till the approach of frost.

The bulbs of hyacinths, jonquils, narcissus, and some others, may be put in bulb glasses, but none succeed so well as hyacinths. The water must be changed when it turns greenish, and protected in winter from frost.

11.—*Planting Roses, &c. in Pots.*

Roses, honeysuckles, double flowering almonds, double flowering peaches and cherries, &c. may be potted, and taken care of for forcing, or for affording them protection in winter.

FOR NOVEMBER.

1.—*General Observations.*

Clear the beds, borders, and other parts of the garden, from fallen leaves of trees, and the dead stalks of plants; pulling up the annuals by the roots, as they never flower again and cutting down the decayed parts of perennials, to the ground. Hoe and clear off weeds of all kinds, and where there are no bulbs planted, slightly dig the ground without injuring any plants growing therein; rake the surface smooth and even, carry away out of the walks, borders, &c the fallen leaves of trees, and other rubbish. Place small stakes and bass mats, or long straw, around such plants of the hydrangia hórtensis,

China, and Otaheite roses, &c. as you have planted out, in warm sheltered borders. Many plants that are commonly kept in green houses, would abide during winter in the open ground, if thus protected; but this should not be done till the keen frosts commence.

Lay roses and other shrubs for propagation, and in the early part of the month, take off well rooted layers, and dig up suckers of approved plants, which plant immediately.

Turn your compost heaps of every kind, and spread them so thin, that the frost may penetrate every part of them; let the lumps be well broken, and all parts properly mixed, by the frequent turnings.

Provide materials, and make new composts, agreeably to the directions given in the preceding part of this work, and in Shrubbery, page 254, in order to have them suitable for use in the succeeding year; for the longer they are kept in a state of preparation, and the oftener they are turned, the more effectually they will be incorporated, and all plants will thrive the better therein.

2.—*Protect Tulips, Hyacinth, Anemone, and Ranunculus Roots.*

Previous to the setting in of the frost, towards the latter end of this month, protect the bulbs of choice tulips and hyacinths, by a good covering of straw, &c. or if a rough frame is now made around the beds, three inches high on one side, and eight or ten on the other, the pieces at the ends to suit, also a lining of fresh tanners' bark, or horse dung, on the outsides, as high as the frame, which, in the severest weather, may be covered over with boards, mats, &c. by this care the flowers will blow much stronger, and more perfect, than they otherwise would.

The protection should be somewhat more perfect for the anemonies, and ranunculuses, the frames may be made higher, so as to admit of a stronger lining of dung, and be careful to cover them well with mats. The coverings should be taken off in very mild weather, and

particularly on the approach of a mild genial spring. The earth, in the beds of the anemonies, and ranunculuses, should be protected by glasses, or in default of these, with boards and mats, so as to prevent the ground from being frozen.

The less valuable hyacinths and tulips, also the polyanthus narcissuses, in the open ground, would be considerably protected, by having two inches deep of two years old tanners' bark spread over them, but be careful not to use new or fresh tan, from the vats, as this would do them more injury than the entire omission of covering, or affording them any protection whatever.

3.—*Auriculas, Polyanthuses, Carnations and Primroses.*

The pots containing your choice auriculas, polyanthuses, carnations, and double primroses, should, immediately previous to the setting in of winter, be plunged to their rims, close together, in a garden frame, to be protected from heavy rains and hard frosts, by putting on the glasses and mats, occasionally. But, as all these may be considered half hardy plants, they must be exposed to the weather, every tolerably mild and dry day: although it will be proper to line the outside of the frame, with hot dung, to preserve them in the most severe frosts of winter.

4.—*Double Daisies.*

The double daisies planted as directed in October, No. 8, should be protected as No. 3, from heavy rains, snow and severe frost, but let them have the benefit of the air, whenever the weather is mild.

The daisies which were potted in September, with a view to force them in winter, should be particularly attended to, during the whole of this month, in order to strengthen them as much as possible.

5.—*Protecting Seedling Bulbs.*

The pots or boxes in which the seeds of bulbous rooted flowering plants were sown, and also those containing

one and two year old seedlings, may be placed in a trench, as deep as their rims, the spaces between, and also, all around them, covered with tanners' bark, to their tops; then on the setting in of severe frost, give them a covering of dry straw, which must be taken off occasionally, in mild, clear weather, and dried, in order to prevent its becoming mouldy and injuring the plants.

6.—*Stock-Gilliflowers, and Wall Flowers.*

Your double stock-gilliflowers, and double wall flowers, in pots, should now be either taken into the greenhouse, or a warm, close room, where they may be protected during winter. Although the proposed protection, will be of great advantage to them, yet they are tolerably hardy, and will generally keep well, by a very slight protection of boards, covered with mats, straw, or other litter, when the frost is severe. They will seldom be injured before February, but a warm sun, about the end of that month, if suffered to shine on them, whilst the leaves or stems are in a frozen state, would totally destroy them.

It would be of additional advantage to lay three or four inches of tanners' old bark over the surface of the pots, and be a great preservative from frost. The plants should have as much air, in mild weather, as well can be, for if kept too closely covered, they would become weak and tender, and lose that vigorous growth so necessary to a full blow.

7.—*Taking up and preserving the roots of Tuberoses, and Scarlet Amaryllis, &c.*

The frost in this month, destroys the foliage of tuberoses, scarlet amarylisses, and other very tender bulbs, which generally remain inactive in winter; at this time, take up the roots, spread them over the floor of a warm room, and when the leaves and roots are dry, divest them of their decayed foliage and fibres, spread them as before, for some time, always preserving them from frost. When

sufficiently dry, pack them up in boxes, in dry saw-dust, chaff, &c., and then place them in some very warm room, during winter, as the least frosts would totally destroy the roots.

FOR DECEMBER.

1.—*General Observations.*

Composts are now to be procured, and prepared by turning, mixing, &c.; they must always be kept under cover.

Frosty weather, when very severe, be careful to place the tender plants, which you have in pots, in frames, and in rigorous frosts, cover them carefully with glasses; those that are under hoop arches, &c. should have a thick covering of garden mats, and you may also spread long litter around the bottom of the hoops, which will be an additional protection from keen winds.

Also prepare small label sticks, to mark or number the various flowers and seeds, when they are planted or sown, and prepare all the tools, and every other necessary convenience, for your spring operations.

2.—*Tulips, Hyacinths, Anemonies, and Ranunculuses.*

The same care is requisite for all these choice roots, as directed in November, No. 2, which see.

3.—*Care of Auriculas, &c. Seedling Bulbs.*

The finest auriculas, carnations, polyanthuses, double primroses, double daisies, stock-gilliflowers, wall flowers, and other plants of similar constitutions in frames,

are to have the same protection continued, as directed in Nos. 3 and 6, of last month. Seedling bulbs to be attended to in like manner.

4.—*Anemonie and Ranunculus Seeds.*

Several varieties of the anemone are extremely beautiful, and as from the seeds alone, varieties are to be obtained, the florist must make use of nature's favourite method, by sowing seeds every year.

As double flowers rarely produce seeds, they are therefore to be procured from your best semi-double flowers, which should be placed in as intimate connexion with the best double ones as possible.

The seed of the ranunculus should remain on the plant, till it has lost its verdure, and becomes brown and dry, it may then be cut off, spread upon paper, and exposed to the air, until perfectly dry, it should then be preserved in that state, in paper bags, till the time of sowing.

Anemone seed must be gathered just before, or at the time, the seed vessels open, for being downy and very light, it is liable to be blown away, even by a small breeze of wind, or fall and be lost.

For sowing both these beautiful flowers, procure shallow boxes, about six inches deep, and having prepared some compost, as directed in Shrubbery, page 254, No. 7, first kind, sufficient for your boxes, sift it through a fine sieve, so as to separate the smallest stones from the compost, as this will enable you to obtain all the plants, by a similar sifting, at the time of their maturity.

The anemone seed, previous to sowing, being enveloped in a downy substance, and adhering together, must be well rubbed between the hands, with a portion of fine dry sand, without much grit, by which means the seeds may be separated from each other; this must be carefully performed, to prevent the young plants from coming up in clusters, which would materially affect them.

The ranunculus seed should be perfectly cleaned from the stalk, and every other extraneous matter, previous to sowing.

The last of December, or any time in January, the seeds may be sown, in the boxes above mentioned, which should have holes bored through the bottom, and covered over with oyster shells, then filled with sifted compost within two inches of the top, give it a gentle watering to settle the compost, after which fill it up to the top with the same soil, on which the seeds are to be sown with the utmost regularity, in such a quantity as nearly to cover the surface, when they may be patted down gently with the back of a trowel, but the seeds should not be covered with earth, more than their own thickness.

Frames should be provided with glasses, similar to those made use of for cucumbers and melons, and good soil laid on them, at least two feet deep; it should remain a few days to settle. This should be done previous to sowing the seeds; after this, they should be sown as above directed, in separate boxes, which are to be placed in the frames, and the glasses kept closely covered over them for two or three days, then give a light sifting of compost over the seed, yet being careful not to cover them thicker than a wafer, as more would place them below the principle of vegetation. The frames should be managed, as directed for cucumbers and melons, Kitchen Garden, page 9, &c. lining the outside with hot dung.

When the young plants begin to appear, which will generally be in about six or eight weeks, if sown as above directed, refresh them occasionally with very gentle waterings, first taking the chill from off the water. They must be screened from the powerful influence of the mid-day sun, which protection must be afforded them, till the roots come to maturity, which will be known by the foliage becoming brown, dry, and nearly wasted away; this, in the middle states, generally occurs in the latter end of June, or beginning of July.

When the roots are to be taken up, collect the whole of the earth from each box, and sift it carefully through a fine wire sieve, that will not permit the smallest root to pass through; the roots are then to be dried and preserved, as directed in page 316, till the latter end of September, or early in October.

The ensuing season several of the largest roots will flower, especially the ranunculuses, and all of them the third year; such as are worth being preserved, may be marked.

5.—*Auricula, Polyanthus, and Cyclamen Seeds.*

Auricula seeds should be saved from young strong plants, possessing the first rate properties. When these show their buds, they should be placed in a distant part of the garden from the others, otherwise their farina would mix with them: in this place, they must have the full air, moderate rains, and the genial influence of the sun, in the morning and afternoon; but the plants must be protected from the excess of either, by mats laid on hoops, or by small hand glasses. In dry weather, they should be regularly watered.

In June, the seed commonly ripens, when such pods as appear perfectly dry, and beginning to open, should be carefully selected, and suffered to remain in their seed vessels, in a dry room, till the season of sowing.

They may be sown, as directed for anemonies, in No. 4, of last month.

At the expiration of four or five weeks, the young plants will have made their appearance; it then becomes necessary to give them, very gradually, as much air as possible, in order to render them able to bear a full exposure to it. In the month of March, if the plants are forward, they should be fully exposed to the open air, for a short time, every mild day, when the sun is not too powerful. For their subsequent treatment, see the Flower Garden, for April and the following months. A hair

band may be placed round the boxes, to prevent their being attacked by snails, &c. as directed in page 298.

Polyanthus seed and seedlings are to be treated in the same manner, and to be sown at the same time, as the auriculas.

Cyclamen seeds, generally, may be sown in boxes, and treated as the others.

HUMULUS, THE HOP.

The Humulus, or Hop, being indigenous in several of the United States, and more particularly the state of Ohio, where nature has spread it profusely in various places through the state. From this affording so favourable a soil and climate for such a valuable plant, the regular cultivation of it might be of real advantage to individuals, as well as to the state; were hop yards to be generally planted there; the following account is therefore subjoined.

In *March*, begin to plant your hops in hills, from six to nine feet apart, according to the richness of the soil; having marked the places for the hills, if the ground be poor, dig a hole eighteen inches square at each place, and fill it with rich earth or compost; over this draw the earth you dig out. In each hill, set three or four strong plants; they must be suckers from eight to twelve inches long, of last year's growth, each having three or four buds or joints; insert the plants their full depth in the hills, and at equal distances from each other; this may be done with a dibble; then close the earth well about the plants. A hop yard should be sheltered by trees, and a hedge of thorns or cedars, to screen them from violent winds. The ground should be moist and rich; if the situation could be near a stream, from whence you might water the hops in dry weather, it would be advantageous.

In *January* and *February*, be careful to collect strong poles for the intended hop yard. The poles should be ten to fifteen feet long, and very firm.

There should be at least three poles to each hill.

In *April*, dress the old plantations of hops, and make new ones. The dressing is to be performed thus:—Level down the hills, undermine round them, take up the young suckers, but leave the main runners, at least one for each pole, bring some rich compost to the hills, and make them up again as before; the suckers may be used to form new plantations. When the plants are three or four inches above ground, fix poles for them to climb upon, one to each plant; force the poles firmly into the ground, fixing the largest ones to the strongest plants; the poles should be taper, from ten to fifteen feet long as before directed, and the thick ends to be set in the ground.

When the plants are two or three feet long, conduct them to the poles, and tie them with soft bandages. It is best to handle them in the afternoon, as they are more brittle in the morning.

In *May*, hops require frequent attendance, otherwise they will ramble irregularly, and be materially injured. When they begin to branch, and have attained nearly the height of the poles, nip off the top of the branches, which will occasion them to produce stronger flowering stems. In dry weather (if it continues long) give them plentiful waterings; after which, pare the alleys, and throw it on the hills; do the same after showers, and be careful to keep them well hoed, and clear from all kinds of weeds.

In *June* and *July*, they will require the same attendance, as directed in May.

In *August* or *September*, the hops will be ripe; the flower is then brownish, smells fragrant, and is readily separated from the plants. The vines must now be cut off at their bottoms, and the poles taken up, with the vines clinging to them, (previously cutting them at the top, where they are entangled with the vines of other hills;)

then place them on a frame, over which some canvas is spread, upon which they must be picked, and freed from leaves and stocks. Hops must be gathered when there is no rain or dew upon them; as soon as they are picked, they must be spread to dry, in an airy room, and be frequently turned. Where large quantities are raised, there should be a shed for protection, while picking them, and a kiln for drying. When they are perfectly dry, they must be forcibly pressed into strong bags; for the tighter thep are packed, and the more there is forced into a bag, they will keep better, and retain their strength longer.

In *September*, if not done in last month, you may continue to gather and pack your hops, as directed in August. When all is completed, collect the poles together, and place them under a shed, for another season.

In *October*, bring fresh dung to the hills, and hoe the earth around them, to preserve their stems through the winter

In *November*, bring in more manure, dig or plough it in, and destroy all the weeds.

GREEN HOUSE,

FOR

JANUARY.

A GREEN HOUSE should be erected in a sheltered situation, it should stand on an elevated, and dry spot, fronting the south, and where the sun may have full access, from its rising to its setting, having the front wholly of glass, ranged lengthwise, east and west, its architecture to be ornamental. It is designed as a place of winter residence, for such parts of the vegetable creation, as, in their native countries, grow in the open fields, in all seasons, but, when cultivated in less favourable climates, require protection, in winter, from frost only; it not being necessary to introduce artificial heat for them, except in very severe weather, when a moderate fire, from a furnace outside, either in the end, or back wall, communicating the heat to such flues or funnels, ranging along on the inside, will be necessary, both in severe frosts, and also in moist, foggy weather, in order to dispel the damps, which would otherwise, be pernicious to several of the more tender kinds.

As to the form and dimensions of a Green House, it should be square or oblong, from ten to fifty feet, or more, long; and its width, from ten, to fifteen or twenty feet; its height, to the top of the upright front glasses, twelve to fifteen feet or more.

The walls of the back and ends, whether of stone or brick, should be about twenty-seven inches thick, the flues should range, in two or three returns, along the back wall, with only a brick on edge, and one flue should run along the front, and end walls, which should be wholly above the floor. The front of the building should have as much glass as possible, with a wide glass door in the middle, which, at the same time, that it may allow the plants to be taken in and out, is to be made ornamental. A small door may be made at one of the ends, for entrance into it, in severe weather.

The width of the glass sashes may be five or six feet, and the piers between them of timber, about ten inches wide, in front, sloping inward, on both sides, that, by the obtuse angles thereof, the rays of the sun may have freer admission to the plants.

One half of the roof may be formed of glass-work, and the remainder of it covered with shingles, over which may be placed tarpaulins, fixed on rollers, to be let down over the glass, in very severe weather; and also canvas covering, so fixed, as to be occasionally let down, before the windows in front.

Let the inside of the back part of the building, as far as the glasses, have a horizontal lathed and plastered ceiling, which will be, in some measure, in that part, a protection from frost.

All the panes in the roof lights, where they overlap one another, should be neatly and closely puttied; the size of the glass should be six by four inches, which would be both strongest and cheapest, and if all of the sashes were so constructed, as to slide up and down, a few feet, by means of pullies, to give vent to the foul air, generated in the house, which naturally ascends to the upper part, it would be of advantage.

The front windows, if made with large panes of glass, &c. will admit more light, as well as give a more handsome appearance to the house; the upper half of each sash should be made to slide down, and the lower

half to be raised up, occasionally, to admit air, to the plants, when necessary.

If the bulding will allow a spacious and ornamental window, to be fixed in each end, to receive the benefit of the rising and setting sun, it will be of considerable advantage; these should have tight shutters, to be closed every night during the winter, and also in the day time, except when the sun shines on them. Outside sliding shutters may be made for the front windows, to be put on when necessity requires, and over these, the mats before mentioned, let down by their rollers.

Every part of the wood work should be of good seasoned wood, well painted, so as to prevent them, as much as possible, from being swelled by wet, or from shrinking by drought; all the parts should be well jointed and fitted together, so as to be as nearly air tight as possible.

Every part of the green house, on the inside, ceiling, walls, and flues, should be neatly finished off, smoothly, with good plaster, and white wash, all the wood work to be made in the best manner, of good seasoned timber, particularly the doors, sashes, &c. Let the bottom or floor be paved with large square stones. The floor should be raised twelve or eighteen inches above the level of the ground, to prevent the damps, which arise, from injuring the plants. The whole of the building to be painted white.

A house properly constructed, will seldom require the assistance of fire heat, which ought always to be used in a green house with great caution; it will admit light, collect heat, and preserve the plants in health and beauty.

Tressels of different heights, with planks upon them, should be placed in the green house, so as to allow the plants to be neatly and judiciously disposed, the whole apartment regularly filled, yet not improperly crowded, as this would materially injure the plant.

THE CONSERVATORY.

A conservatory differs from a green house, the front and sides being moveable; and also in the conservatory,

the ground plan is laid out in beds, of the best compositions of soils, that can be procured, three or four feet deep; in these beds, the trees or plants, taken out of their tubs or pots, are regularly planted and taken care of through the winter, in the same manner, as directed for the green house. This house has a back of brick, &c. similar to a green house, the sides of wood; it is to be roofed, as well as fronted with glass; and instead of removing the plants in summer, the whole of the glass roof, fronts, and sides are taken away, the plants are permitted to enjoy the summer's heat, refreshing showers, &c. also the full and open air; but on the approach of the autumnal rigor, the conservatory is again to be replaced as before and so to remain until the May following.

TABLE I. *Green House Trees and Shrubs.*

1 *Aitonia Capensis*, Cape Aitonia
2 *Amyrus elemifera*, Gum Elmi Tree
3 *Anthylis barba Jovis*, 5 kinds
4 *Apacynum frultescens*, Shrubby Dog's Bane
5 *Arbutus*, Strawberry Tree, 2 sorts
6 *Arctotis aspera*, Rough Arctotis
7 *Ardisia escelsa*, Laurel leaved ardisia
8 *Arduina*
9 *Aristotelia*
10 *Artemisia argentea*, Silvery leaved Wormwood
11 *Asclepias fruticosa*, Shrubby Asclepias
12 *Ascyrum Hypericoides*
13 *Asphalathus Cretica*, Cretan Asphalathus, 2 kinds
14 *Asparagus Asiaticus*, Slender stalked shrubby Asparagus, 2 sorts
15 *Asterfruticosus*, Shrubby Aster
16 *Atragene Alpina*, Alpine Atragene
17 *Atraphaxis Spinosa*, Prickly atraphaxis
18 *Atriplex Halimus*, Shrubby Orache
19 *Aucuba Japonica*, Japan Aucuba
20 *Azalea Pontica*, Yellow Azalea
21 *Baccharis iveefolia*, Peruvian baccharis
halamifoli—Sea purslane leaved baccharis
22 *Banksia serrata*, Saw leaved Banksia
23 *Baureria rubioides*, Madder leaved Baureria
24 *Bejaria resinosa*, Gummy Bejaria
25 *Blaeria ericoides*, Heath leaved Blaeria
26 *Borbonia crenata*, Notch leaved Borbonia
27 *Buchnera viscosa*, Clammy Buchnera
28 *Buddleia globosa*, Round leaved Buddleia
29 *Bupthalmum fruticosum*, Shrubby Hare's Ear
30 *Bystropagon Canariense*, Canary Bystropagon
31 *Cacalia Kleinia*, Oleander leaved Cacalia
32 *Calendula Tragus*, Bending stalked Marigold
fruticosa, Shrubby do.
33 *Calycanthus præcox*, Japan Allspice
34 *Camellia Japonica*, Japan Camellia
35 *Campanula*, Bell flower, 2 kinds

36 *Caparis spinosa*, True Caper shrub
37 *Cassia multiglandulosa*, Glandulous Cassia
38 *Cassine*, 3 kinds
39 *Cassuarina stricta*, Upright Cassuarina
40 *Ceanothus Africanus*, African Ceanothus
41 *Celsia*, 2 kinds
42 *Centaurea Ragusina*, Cretan centaury
43 *Ceratonia siliqua*, Carob tree
44 *Chamærops humilis*, Dwarf Fan palm
45 *Cheiranthus*, 6 kinds, different varieties of each
46 *Chironia*, 2 kinds
47 *Cineraria lanata*, Wooly Cineraria
48 *Cineraria amelloides*, Blue flowered Cape Aster.
49 *Cistus*, 21 kinds
50 *Citrus*, Orange, lemon, lime, &c. 21 kinds
51 *Clematis*, Virgin's Bower, 2 kinds
52 *Cliffortia*, 2 kinds
53 *Cnæorum tricoccum*, Widdow Wail
54 *Colutea frutescens*, Scarlet Colutea
55 *Convolvulus*, 2 kinds
56 *Conyza*, 5 kinds.
57 *Corchorus Japonicus*, Japan Corchorus
58 *Coronilla*, 5 kinds
59 *Crambe*, 2 kinds
60 *Cressa Cretica*, Cretan Cressa
61 *Cretolaria*, 2 kinds
62 *Croton sebiferum*, Chinese Tallow tree
63 *Cunonia Capensis*, Cape Cunonia
64 *Cupressus*, Cypress, 5 kinds
65 *Curtisia faginea*, Beech leaved Curtisia
66 *Cycas revoluta*, true sago palm
67 *Cynanchum*, 2 kinds
68 *Cytissus*, 7 kinds
69 *Dais cotinifolia*, Cotinus leaved Dais
70 *Daphne*, 3 kinds
71 *Dianthus arboreus*, Tree Pink, 3 kinds
72 *Digitalis*, Fox glove, 2 kinds
73 *Diosma*, 4 kinds
74 *Dodonæa angustifolia*, Narrow leaved Dodonœa
75 *Dolichos lignosa*, Purple shrubby Dolichos
76 *Doræna Japonica*, Japan Dorœna
77 *Dracœna Draco*, Dragon tree
78 *Ebenus Cretica*, Cretan Ebony
79 *Echium*, Viper's Bugloss, 2 kinds
80 *Elœagnus Orientalis*, Oriental Elæagnus
81 *Embotrium coccineum*, Scarlet Embotrium, and two other varieties
82 *Empleurum serrulatum*, Cape Empleurum
83 *Epacris longifolia*, Long leaved Epacris
84 *Erica*, Heath, 20 kinds
85 *Eriocephalus Africanus*, Cluster leaved Eriocephalus
86 *Erodium incarnatum*, Flesh coloured Crane's bill
87 *Escallonia serrata*, Serrate leaved Escallonia
88 *Eucalyptus obliqua*, Oblique leaved Eucalyptus
89 *Ficus cordata*, Cordate leaved Fig
Capensis, Cape Fig
90 *Fuchsia coccinea*, Scarlet fuchsia
91 *Fusanus compressus*, Flat leaved Fusanus
92 *Gardenia florida*, Fragrant gardenia, or Cape Jasmine
Rothmannia, Spotted flowered gardenia
93 *Gelseminum nitidum*, Carolina yellow Jasmine
94 *Gaura mutabilis*, Changeable flowered Gaura
95 *Genista*, Broom, 2 kinds
96 *Geranium anemonefolium*, Anemone leaved Geranium

The genus of geranium as constituted by Linnæus, having outstripped common bounds by modern discoveries, has been divided into three genera, viz:

Erodium, with five fertile stamens only
Pelargonium, with seven; and

Geranium, with all the ten fertile.

The great variety of what were formerly called *Geraniums*—see *Pelargonium*.

97 *Glycine*, 3 kinds
98 *Gnaphalium*, Cudweed, 4 kinds
99 *Goodenia*, 2 kinds
100 *Gordonia lasianthus*, Smooth Loblolly Bay
101 *Gorteria regens*, Great flowered Gorteria
102 *Grewia occidentalis*, Elm leaved Grewia
103 *Haleria lucida*, African fly honeysuckle
104 *Hedysarum Alhagi*, Prickly Hedysarum
105 *Heliotrophum Canariense*, Canary Turnsole
106 *Hermania*, 4 kinds
107 *Hibiscus*, 3 kinds
108 *Hippia frutescens*, Shrubby Hippia
109 *Hudsonia ericoides*, Heath leaved Hudsonia
110 *Hydrangia hortensis*, Garden changeable Hydrangia, or Chinese Guelder Rose
111 *Hyoscyamus aureus*, Golden flowered Hen's bane
112 *Hypericum Coris*, Heath leaved St. John's Wort and two others
113 *Jasminum odoratissimum*, and 5 others
114 *Iberis*, 2 kinds
115 *Ilex*, Holly, 2 kinds
116 *Illicium Coridanum*. Red flowered Aniseed tree
117 *Indigofera psoraloides*, Long spiked Indigo with 3 other kinds
118 *Inula cerulea*, Blue flowered Inula
119 *Iva frutescens*, Shrubby Iva
120 *Juniperus Bermudiana*, Red Cedar tree
121 *Justicia Adhatoda*, Malabar Nut and 5 others
122 *Ixia fruticosa*, Shrubby Ixia
123 *Kiggelaria Africana*, African Kiggelaria
124 *Lachnæa*, 2 kinds
125 *Lagerstræmia*, 3 kinds
126 *Lavendula*, 4 kinds
127 *Laurus*, Laurel or Sweetbay, 7 kinds
128 *Leea sambusina*, Elder leaved Leea
129 *Leptospermum*, 4 kinds
130 *Linum arboreum*, Tree flax
131 *Liparia spherica*, Globe flowered Liparia
132 *Lobelia*, 2 kinds
133 *Lupinus arboreus*, Tree Lupine
134 *Lycium*, Box thorn, 3 kinds
135 *Lythrum fruticosum*, Shrubby Willow Herb
136 *Magnolia*, 4 kinds
137 *Mahernia*, 8 kinds
138 *Malva*, Mallow, 3 kinds
139 *Melicago arborea*, Shrubby moon Trefoil
140 *Melalenca*, 2 kinds
141 *Melia Azedarach*, Bead tree—Pride of China
142 *Melianthus major and minor*
143 *Metrosideros*, 3 kinds
144 *Mimosa*, 7 kinds
145 *Mimulus aurantiacus*, Orange Monkey flower
146 *Myrica Æthiopica*, African candleberry Myrtle, with 5 other kinds
147 *Myrtus communis*, Common Myrtle, 12 kinds
148 *Nerium Oleander*, Oleander, single and double
149 *Nicotiana fruticosa*, Shrubby tobacco
150 *Olea*, Olive, 6 kinds
151 *Ononis*, Rest Harrow, 3 kinds
152 *Osteospermum*
153 *Origanum Dictamnus*, Dittany of Crete
154 *Orthonna*, 2 kinds
155 *Panax*, 2 kinds
156 *Passerina*, Sparrow root
157 *Pelargonium*, Geranium, 40 kinds
158 *Pelargonium* suffruticose, or nearly herbaceous, 6 kinds
159 *Pelargonium*, almost stemless—roots tuberous, 3 kinds

The varieties of geraniums here estimated, are said to be about 90; they are mostly from around Table Mountain, Cape of Good Hope, Africa: but their number in all probability exceeds 200. They may with propriety be called the Pro-

teus of plants, assuming almost every shape and scent
160 *Phlomis*, 5 kinds
161 *Phillyrea*, 12 kinds. A few of these, especially the variegated sorts should be kept among the green house collection,
162 *Phyllis Nobla*, Bartard Hare's Ear
163 *Pinkneya pubescens*, Pubescent Pinkneya
194 *Pistachia*, 2 kinds
165 *Platilobium fermosum*, Large leaved Platilobium
166 *Plectanthrus fruticosus*, Shrubby Plectantbrus
167 *Polygala*, Milk wort, 3 kinds
168 *Portulaccaria Africensis*, African Furslane tree
169 *Potericum spinosum*, Shrubby Prickly Burnet
170 *Prassium majus* et *minus*, Spanisn Hedge Nettle
171 *Protea*—Upwards of 80 species
172 *Prunus Lauro Cerassus*, Levant Laurel, 2 kinds
173 *Psoralea*—Upwards of twenty species
174 *Pultenia stipularis*, Scaly Pultenœa
175 *Punica nana*, Dwarf Pomegranate
176 *Punicum Granatum*, Single and Double
177 *Pyrus Japonica*, Japan Apple
178 *Quercus Ilex*, Evergreen Oak, 6 varieties
Virens, Live Oak
Suber, The Cork tree
179 *Rhamnus*, 6 kinds
180 *Rhododendron Ponticum*, Purple Rhododendron
181 *Rhus*, Sumach, 3 kinds
182 *Roella celliata*, Prickly Roella
183 *Ruscus*, Butcher's Broom, 4 kinds
184 *Ruta Chalepensis*, African Rue
185 *Salvia*, Sage, 6 kinds
186 *Santolina rosmarinifolia*, Rosemary leaved Lavender Conton
187 *Sapindus Saponaria*, &c. Soapberry tree, 3 kinds
188 *Scabiosa Africana*, African Scabius
189 *Schinus Molle*, Peruvian Mastick tree
190 *Selago*, 2 kinds
191 *Senecio*, 3 kinds
192 *Sideroxylon inerma*, Smooth Æthiopian Iron Wood
193 *Solanum Pseudo Dapsicum*, Shrubby Winter Cherry, and 4 other kinds
194 *Saphora*, 2 kinds
195 *Sparmannia Africana*, African Sparmania
196 *Spielmannia*
197 *Spartium*, Broom, 6 kinds
198 *Sterculia*
199 *Struthiola*, 2 kinds
200 *Tanacetum Cabelliforme*, Fan leaved Tansey
201 *Tarchonathus camphoratus*, Shrubby African Flea bane
202 *Taxus elongata*, African Yew tree
203 *Tetragonia fruticosa*, Shrubby Tetragonia
204 *Teucrium fruticans*, Tree Germander, 4 kinds
205 *Thea Bohea*, Bohea Tea
Viridis, Green Tea
206 *Thymbra Spicata*, Spiked thymbra
207 *Vaccinium Arctostaphylos*, Madeira Whortleberry
208 *Verbena triphylla*, Three leaved shrubby Verbena
209 *Veronica decussata*, Cross leaved Speedwell
210 *Viola arborescens*, Tree Violet
211 *Vitex Agnus Castus*, Chaste tree, 2 kinds
212 *Ulex*, Furze or Whin
213 *Urtica nivea*, Snowy nettle
214 *Xeranthemum*, 5 kinds
215 *Yucca*, Adam's Needle, 5 kinds
216 *Zygophllum*, Bean Caper, 3 kinds

Table II. *Green House Succulent and Herbaceous Biennial and Perennial Plants.*

The succulent plants are thus marked*, the biennials,† and the most hardy‡. The most hardy will frequently bear the winters of the middle states, in the open ground, and a dry warm situation.

1 **Agave*, American Aloe 3 kinds
2 **Aloe*, 23 kinds
3 *Alstrœmeria Pelegrina*, Spotted Alstrœmeria
4 *Ancistrum latebrosum*, Hairy ancistrum
5 *Anthericum Alooides*, Aloe leaved Anthericum
6 *Anterrhinum*
7 *Aristea capitata*, Tall Aristea
8 †*Calceolaria Fothergillii*, Fothergill's Slipperwort
9 †*Celsia*, 2 kinds
10 *Cineraria Cruenta* Purple leaved Cineraria
11 *Convolvulus Scammonia*, Scammony Convovulus
12 **Cotyledon*, Navel wort, 4 kinds
13 *Crassula*, 2 kinds [Crotolaria
14 *Crotalaria triflora*, Three flower
15 *Diannella cerulea*, Blue Dianella
16 *Dianthus Capensis*, Cape Pink
17 ‡*Dionœa Muscipula*, Venus's flytrap
18 *Didelta carnosa*, Succulent leaved Didelta
19 *Dracocephalum Canariense*, Balm of Gilead
20 *Elytraria*
21 *Erodium*, 2 kinds
22 *Erythrynia herbacea*, Herbaceous Coral tree
23 **Euphorbia*, Spurge, 7 kinds
24 ‡*Ferula assafœtida*, Assafœtida plant
25 *Iris Chinensis*, China Iris
26 *Lobelia*
27 *Lychnis Chinensis*, China Lychnis
28 *Marica*
29 **Mesembryanthemum*, Fig Marigold or Ice Plant, 20 kinds
30 *Michauxa*
31 *Mimosa horridula*, Sensitive herbaceous Mimosa
32 *Monsonia*, 2 kinds
33 *Moræa*, 2 kinds
34 †*Oenothera grandiflora*, Great flowered Oenothera, 3 kinds
35 ‡*Passiflora incarnata*, Three leaved Passion flower
36 *Psoralea Palestina*, Herbaceous Psoralea
37 *Ranunculus Parnassifolius*, Parnassus leaved Crowfoot
38 *Salvia Nubia*, Nubian Sage, 8 kinds
39 *Selago spuria*, Linear leaved Selago
40 *Senecio elegans fl. pleno*, Elegant double flowering Groundsel. This is an annual plant, yet the propagation of the double variety may be continued by slipping it annually.
41 **Sempervivum arboreum*, Tree Houseleek, 4 kinds
42 †*Silene*, Catchfly, 2 kinds
43 *Saphora alopecuroides*, Fox Tail Saphora
44 *Stachys coccinea*, Scarlet Stackhys
45* *Stapelia*, near 50 kinds

Table III. *Green House Bulbous and Tuberous Rooted Plants.*

1 *Agapenthus, umbellatus*, African Blue Lily
2 *Albuca*, major and minor
3 *Aletris Capensis*, Cape Aletris
4 *Amaryllis Belladonna*, Belladonna Lily
Sarniensis, Guernsey Lily, with 9 other kinds

5 *Antholyza*, 6 kinds
6 *Babiana*, 6 kinds
7 *Bulbocodium vernum*, Spring flowering Bulbocodium
8 *Colchicum variegatum*, variegated Meadow Saffron
9 *Crinum*, 2 kinds
10 *Cyannella*, Purple, Yellow and White
11 *Cyclamen*, 5 kinds
12 *Cyrtanthus*, 2 kinds
13 *Eucomis*, 4 kinds
14 *Geiscorhiza*
15 *Gladiolus*, Corn flag 20 kinds
16 *Hemanthus*, or Blood flower, 6 kinds
17 *Hyacinthus revolutus*, Waved leaved Hyacinth
18 *Hypoxis*, 2 kinds
19 *Iris*, 7 kinds
20 *Ixia*, several species and varieties
21 *Lachenalia*, 8 kinds
22 *Lapeyrousa*, 2 kinds
23 *Leucoium strumosum*, Cape snow-drop
24 *Massonia* 4 kinds
25 *Melanthium*, 5 kinds
26 *Melasphærula*
27 *Moræa*, 6 kinds
28 *Orchis*, 2 kinds
29 *Ornithagalum*, Star of Bethlehem 6 kinds
30 *Othonna*, 2 kinds
31 *Oxalis*, Wood sorrel, several kinds
32 *Scilla maritima*, Officinal Squill, and 7 others
33 *Trichonema*
34 *Tritonia*, 6 kinds
35 *Tulipa Breyniana*, Cape Tulip
36 *Walchendorfia*, 3 kinds
37 *Watsonia*, 7 kinds

General Observations.

In mild days, when the weather is moderate and fair, open the windows of the Green House a little, for the admission of fresh air, about ten or eleven o'clock and about two or three in the afternoon, let them be shut close again; but this must always be determined by the weather, as there are many changes in a few hours at this season. The upper lights may occasionally be let down a little, for the admission of fresh air, as well as to let out the foul air, when the under lights cannot be raised with safety.

In frosty weather the windows must be kept constantly close, and if very severe, let the window-shutters be shut every night, and even occasionally in the day time, when the frost is extremely rigorous, and the sun does not shine. The canvass on the top may be rolled down over the glass, in extreme cold nights, or during hail and snow, as well as the frost-mats, &c. over the shutters, and remove the small or more tender plants, in front, as far from danger as possible.

Keep the plants perfectly clear from decayed leaves, and every other litter, such as fallen leaves, &c. all of which is essential.

When the weather is foggy, and very wet, keep the windows and door close.

Water must be given to the plants which require it, in very moderate quantities, if possible take the opportunity of a mild day, and if sunny the better, from 11 to 1 o'clock is the proper time of the day, at this season; very little water must be given to the aloes, sedums, and every other succulent plant.

The oranges, myrtles, geraniums, and other woody exoticks, should have but a very moderate quantity given them at any one time.

In green houses with flues, in time of continued severe frosts, make moderate fires, evening and morning, just sufficient to warm the enclosed air, so as to resist the frost, also, in foggy or moist weather, make a very moderate fire, to expel the damp.

FOR FEBRUARY.

1.—*General Observations.*

Your attention will be particularly requsite for all the Green-house plants at this season.

Examine the pots and tubs frequently, each one separately, to see which of them require water, give none where it is not necessary, and always very moderately, a little will be of advantage, but too much now, would materially injure them.

In mild weather, all will equally need the refreshment of the external air, whenever it can be given with safety; but some require frequent waterings, to others it should be given very sparingly. In order to distinguish the difference, the division of 1, woody plants, 2, the herbaceous kinds, 3, the succulent kinds must be carefully attended to.

1. Oranges, lemons, myrtles; and most others of the woody class, will require water frequently, but never give them much at a time, and only when necessary.

2. The herbaceous kinds, should have occasional waterings, but less frequent, and more sparingly than the woody kinds.

3. The succulent kinds, such as aloes, cactuses, mesembryanthemums, sedums, &c. should be watered but sparingly, and that only, when the earth, in the pots, is very dry.

As air is absolutely necessary, to preserve them in a healty, thriving state, this should be always admitted, whenever the weather is favourable. Every mild day, let some of the upper sashes be let down, which will allow the internal confined air to escape, and also supply the plants with fresh air, but great care must be used in doing this, and the lights must be always closed in proper time.

Be very particular, that the windows are not left open, at any time, when sharp cutting winds or cold frosty air arise, neither of which must be at all admitted among the plants. Therefore the green-house should not be left, when the windows are open, for changes are so sudden, that an hour or two, may expose them to material injury.

If the frost is very severe protect the whole building at nights, with the awnings, matts and shutters.

Fires may also be occasionally made, they are sometimes indispensible, but they must never be resorted to, but to keep out the frost, or to dispel damps, and then do not raise the heat above 45° or 46° of Fahrenheit's thermometer, as a greater degree of heat, would bring the plants into a new state of vegetation, which would be checked in the remaining cold months, to their great injury.

The plants throughout the house must be kept free from decayed shoots and leaves, which are not only unsightly, but hurtful to the plants; these must be removed out of the house, which should be kept neat and clean.

Towards the latter end of this month, loosen the earth at the top of the tubs and pots in general, take out one or two inches of the surface and replace it with compost No. 1, Shrubbery, page 254, this will prove very beneficial to the plants, and the advantage will be discoverable in a very short time. A Fahrenheit's thermometer should be kept both in the green-house and hot-house.

The pots of Cape bulbs, such as antholizas, babianas, cyanellas, gladioluses, geissorhizas, ixias, lachenalias, lapeyrousias, massonias, melanthums, moreas, oxaliss, tritonias, watsonias, walchendorfias, &c. which are now vegetating, should be kept as near the glasses as possible, in order that they may produce strong flowers.

2.—*Hot-Beds for Raising Green-House Plants.*

Prepare hot-beds, as directed in Kitchen Garden for January, page 7, for cucumbers, &c. after which add eight or ten inches of good fresh tan, evenly over the bed; if that cannot conveniently be had, put on the same quantity of dry earth. When the bed is in a proper state, sow your seeds separately in pots, and plunge them to their rims in the bed, some of the seeds will not vegetate for a long time, and others frequently lie in the ground a whole year; when the heat of the bed is on the decline, line the outside, as directed for cucumbers, &c. in Kitchen Garden, page 11. Or after sowing these seeds, the pots may be plunged into the bark bed of the stove, or hot-house.

Plant cuttings of geraniums, hydrangias, myrtles, and other Green House plants, in small pots, one or more in each, and plunge them into a hot-bed, they will now strike root freely, and produce fine strong plants. When these begin to grow, give them plenty of air occasionally, and protect them carefully at night, and in very severe weather.

FOR MARCH.

1.—*General Remarks.*

Air must be admitted into the Green House at all suitable opportunities, especially towards the latter end of the month, when the weather becomes warm. As sudden changes are very frequent at this season, the windows, &c. should be kept close, during the prevalence of cold or cutting winds; in order to preserve the plants, the windows and doors must be kept shut every night, and there may be sometimes an absolute necessity to make fires some cold nights, to counteract the injurious effects of the frost.

For further requisite attention to this department, see the general observations in February.

2.—*Oranges, Lemons, and Myrtles.*

Towards the latter end of this month, if the weather is fine and mild, and any of the oranges, lemons, myrtles, &c. have irregular or naked heads, be careful to reduce them to some regularity. The branches or heads may either be cut close, or shortened to the place where you desire new shoots to rise, in order to form a suitable head; it would be an advantage to all trees, especially to such as are weakly, which are thus headed down, to shift them, in order to add a little fresh earth about their roots; for this purpose let the tree, be taken out of its tub, or pot, preserving as much earth around its roots as well may be, then trim off, with your knife, any very matted roots, or dry fibres around the outside, also pare off some of the

loose old earth, as well from the top, as the bottom, and sides of the ball, and put some fresh compost into the bottom of the pot, or tub, place the tree therein, fill up round the ball with fresh earth, and water it moderately; but where the orange or lemon trees are very weak, and sickly in their growth, about the latter end of this month or beginning of next, prune the head, and shift them into entire new earth; take the plant clean out of the pot, shake all the old earth entirely from its roots, cut off all the mouldy and decayed roots, then wash them in water, and plant it again immediately, in a tub, or pot of new earth; do not place it too deep; water it moderately.

It would be a great advantage to the plants, to be placed under a glass case, in which there has been previously made a hot-bed of tan, into which the pots are to be plunged. after this shifting, as they would thereby shoot sooner, as well as more freely, recover their strength, and put forth fresh leaves and roots, reassuming their proper verdure early in the following summer.

When any of these plants have dropped their leaves in winter, and remain deprived of them till spring; in March, April, or May, it is proper to prune their tops a little, and either new earth the pots at top, or shift them, with balls of earth, into other pots, as before directed, giving them fresh earth, and seasonable waterings.

3.—*Shifting Plants into Large Pots.*

Any of the oranges, lemons, myrtles, &c, which require larger pots, may be shifted therein, towards the end of this month, when the weather is mild, observing the directions given in No. 2.

4.—*Geraniums, &c.*

The geraniums, and other plants of a similar growth, should be carefully examined, their young shoots being somewhat succulent, are more liable to injury, from the effects of a severe winter, or great damps, than the hardy woody exoticks, and sometimes many of them decay, or

mould, whenever this occurs they should be pruned away, and all decayed leaves picked off.

5.—*Giving fresh Earth to Green House Plants.*

Oranges, and green house plants, in general, which do not require shifting, should at this time have some fresh earth, first loosen the old earth, in the tops of the tubs, or pots, to the surface of the roots, but not so as to disturb them, and also loosen it down the sides; then take out the loose earth, fill up the pots with some that is fresh, and give them a gentle watering; this is soon done, and will encourage the plants greatly.

6.—*Sowing Kernels of Oranges for Stocks.*

The best method of sowing the kernels of oranges and lemons, in order to raise stocks to bud, any of their kinds of trees upon, is by filling some middle sized pots with very good earth, sow the kernels therein, and cover them half an inch deep with light earth, then plunge the pots into a hot-bed, and let them be frequently watered.

7.—*Sow Seeds of Green House Plants, &c.*

The beginning of this month prepare a hot-bed, in order to sow the seeds of tender plants, both of the green house and stove kinds. The beds should be made either of hot-dung, or fresh tanner's bark, and covered with frames and glasses; if made of hot dung lay ten or twelve inches of tan bark at top, either, new or old, in which to plunge the pots.

Where tan cannot be obtained readily, make the bed of hot dung, and treat it as before directed.

Fill some middling small pots with fine light mould, sow the seeds therein, and cover them lightly with sifted earth, then plunge the pots in the earth, or tan, and put on the glasses.

Let the pots in general, be frequently sprinkled with water, and when the plants appear, give them fresh air, by raising the glasses behind, a little way. Observe to

keep up the heat of the bed by a lining of fresh hot dung. when it declines much, also protect them from the too powerful influence of the mid-day sun.

8.—*Propagating by cuttings, Slips, Layers, &c.*

Various shrubby green house plants may be propagated by cuttings, layers, slips, and suckers, such as myrtle, geraniums, fuschias, oleanders, hydrangias, jasmines, coronillas, justecias, &c. the young shoots, planted in pots, and placed in a hot-bed, will soon strike root, and grow freely, but where there is the convenience of bark beds, these and many other sorts will take root very expeditiously; give suitable waterings.

FOR APRIL.

1.—*General Observations.*

MANY of the green house plants will now begin to shoot freely; it will therefore be necessary to give them as much air, as can be consistent with their safety. Every morning when the weather is mild and calm open the windows, and let them continue so, till it begins to change; but close them before evening. Too much confinement at this season, would materially injure them; by this admission of a free circulation of the air in the house, they would bear a removal into the open air, in the early part of next month.

The plants will now require frequent waterings, especially the oranges, myrtles, &c. and most of the woody kinds.

The herbaceous green house exoticks, will also require to be occasionally refreshed with moderate waterings.

Examine the whole of the plants frequently, to see when water is wanted, and let it be supplied agreeably to their constitutions. But moderation and discretion must be observed in the dispensing of it, while they are in the house, especially to the succulent tribe.

2.—*Shifting Plants into larger Pots and Tubs.*

Such of the plants as require to be shifted, may now be brought out in a warm day, and treated, as directed in March, No. 3.

3.—*Fresh Earthing Plants.*

Attend to this, in the manner directed for oranges, &c. No. 5, last month.

4.—*Trimming and cleaning the Plants.*

Where any decayed straggling ill-placed branches appear, either cut them off close, or prune them, so as to give the plants a handsome form; pick off all decayed leaves, as they appear, and suffer no weeds of any kind to grow in the pots: keep them free from moss, &c. by stirring the surface of the earth frequently; wash and clean the floor of the green house, and let every part of it appear neat and lively.

The large leaved kinds, which have contracted foulness, may be washed one by one, with a sponge dipped in soft water; the small leaved sorts may be taken out of the house in a warm day, and water poured over them, out of a watering pot, which will not only wash off the dust, but refresh the plants; then replace them as before.

5.—*Heading down Shrubby Plants.*

If any oranges, myrtles, lemons, geraniums, or other woody plants are in a bad state of health, they may now be headed down, observing that those which are budded, should not be cut off below the bud, except when the

wood is either dead so far, or in such a state, that no hopes remain of its producing new sorts, you may then head them down to the fresh wood; after this, they will put out plenty of strong shoots, and form regular heads in two or three months. Shifting the plants as before directed, will be necessary on this occasion.

6.—*Inarching.*

Towards the latter end of the month, you may inarch oranges, lemons, limes, and almost every other kind of shrubby plants, agreeably to the directions given in page 206.

By way of curiosity, you may inarch a branch of an orange or lemon tree, that has young fruit upon it, on one of the common seedling stocks; it will be well united by the end of August, when it may be separated from the mother plant, in a full bearing state.

7.—*Sowing Seeds of Green House Plants, &c.*

As early in this month as possible, sow the seeds of geraniums, myrtles, oleanders, lemons, oranges, coronillas, balm of Gilead, aloes, cannas, budlieas, and cactlauses, callicarpa, caparis, celcius, mimosa, mesembryanthemums, centaureas, cinerias, cestuses, coluteas, cyclamens, dolichoses, ericas, and euphorbias, ferrarias, gardenias, genistus, heliotropiums, indigoferas, and lyciums, melias, melianthuses, oleas, passifloras, proteas, and solanums, salvias, silenes, spartiums, yuccas, and xeranthemums, with many others, for which, see the catalogue of green house plants, page 352. For the method of sowing them, see Green House, March, page 363. Many kinds will not vegetate for two, three, four, or six months, and some not sooner than twelve, therefore attend your pots carefully, and your patience and trouble will ultimately produce the desired object.

8.—*Propagating Green House Plants by Cuttings, &c.*

There are few shrubby plants, but may be propagated by layers: these should be laid in pots or tubs; to perform

this, thrust an awl through the joint, which is to be fixed in the ground (in several places) and fastened down with a wooden forked peg; keep the head as erect as possible. After this is performed, there will be no further care necessary, but to give frequent waterings during the heat of the summer, which will greatly promote their rooting.

Suckers may now be taken off, where they appear, and planted in separate pots.

The generality of the green house plants, may be propagated by cuttings or slips; such as myrtles, geraniums, jasmines, hydrangeas, &c. &c. Plant them in hot-beds, carefully shade and water them. Such as do not root freely, should have bell glasses placed over them, and shaded in the hot-bed till rooted; this is the most certain method, to insure the growth of many hard wooded kinds.

The roots of herbaceous plants may now be separated, and planted into other pots. The succulent kinds, such as cactuses, mesembryanthemums, &c. may be propagated by slips, cuttings, and suckers; the slips and cuttings should lie on a shelf in the green house, for a week after they have been taken off, that the cut part may dry, after which they may be planted in pots of good sandy earth.

9.—*Young Orange and Lemon Stocks.*

The young orange and lemon stocks, raised last year for budding, if not done before, should now be planted into separate and suitable sized pots, and by plunging them into a hot-bed, until they have taken fresh root, it will greatly promote their growth. If properly managed, some of the strongest may be of sufficient size to bud in August, and all of them a twelve month after.

10.—*Cape Bulbs.*

Many of the cape bulbs mentioned in general observations, Green House, February, page 360, will now be in flower; they should all be kept in the front part of the green house, and have as much air, as they well can bear,

without which their flowers will be very poor and weak; such as are in bloom, must be kept from the powerful rays of the sun in mid-day, which would prevent their continuing as long in flower, as this care will allow them to do.

11.—*Give Air to Green House Plants.*

In the middle states, the last week in this month, the doors and windows of the green house ought to be kept open night and day, in order to harden the plants, for a removal into the open air, except an extraordinary change of weather should render it prudent to close them at night, which should not be done, but in cases of necessity. In the eastern states, this direction will be requisite to be attended to, after the first of May.

FOR MAY.

1.—*General Observations.*

Water should now be given to every plant, according to its constitution, and in proportion to its necessity, as directed last month. Oranges, myrtles, and other woody kinds will require it frequently; the best criterion is always to keep the earth, in which they grow, moist, but not wet. To the succulent plants, it must as yet be given but sparingly.

2.—*Pruning and Heading.*

Continue to prune and head such plants as require it; let it be done early in the month, as directed in page 365, April, &c.

3.—*Propagating Green House Plants.*

Green house plants in general, may now be propagated by cuttings, suckers, seeds and layers. The China and Otaheite roses can at this season, easily be increased by cuttings; they will strike root freely, and flower in autumn.

4.—*Inarching.*

Inarching may yet be performed on oranges, lemons, or any other plants which may be desired. For the method, see Nursery, page 206.

5.—*Seedling Oranges and Lemons.*

The seedling oranges and lemons, raised from the late sowings of last year, as well as the early sown seedlings, should, in the first week of this month, if not done before, be planted into separate pots; they ought to be watered immediately, and plunged into a hot-bed, as heretofore directed.

6.—*Sow Seeds of Oranges, &c.*

Seeds of oranges, lemons, &c. may yet be sown, as directed in page 363: they will now grow without artificial heat.

7.—*Bringing out the Green House Plants.*

As soon as the night frosts have entirely passed off, which in the middle states may be about the tenth of the month, you may begin to bring out all the more hardy kinds of green house plants, such as the oleander, hydrangea, myrtles, pomegranates, oranges, lemons, &c.; the more tender kinds are to be brought out seccessively, according to their constitutions, so that the green house may be cleared by the twenty-fifth of the month.

When night frosts cease in any part of the United States, the above directions may be applied. After these are over, the sooner they are taken out, and exposed to

the open air, the better, as *nature* is more capable of affording them full vigour, than *art*.

Upon bringing the plants out of the green house, it would be advisable, for ten or twelve days, to place them in a warm situation, where the wind can have but little power, that they may be gradually hardened to the open air; they may then be removed to the places, where they are to remain for the summer.

As soon as the plants are brought out from the house, water them with a hand engine, so as to clean them perfectly from every kind of filth; be careful to pick off all decayed leaves, both which will refresh them, and also give them a lively appearance. Raise them all from the ground, on stages, or on planks set on bricks.

FOR JUNE.

1.—*General Observations.*

The plants being now fully exposed to the open air, will require a constant supply of water. In very hot weather, those in small pots should be watered both morning and evening, using clean soft water without any thing put in it, which would always injure the plants.

If moss or mowings of short grass be spread on the surface of the earth, in the tubs and pots, it will materially protect the plants from the sun and drying air.

Myrtles or other hard wooded plants, which appear in a declining state, may be greatly benefitted, by turn-

ing them out of their pots with all the earth to their roots, and setting them in the open borders, till September, when they are to be taken up, with balls of earth around them, and re-planted in suitable sized pots or tubs; after which, they are to be placed in the shade till housed.

2.—*Propagating the Plants.*

Geraniums, hydrangeas, jasmines, myrtles, China and Otaheite roses, and almost every other kind of shrubby and under shrubby plants, may be propagated towards the middle or latter end of the month, by slips or cuttings of the present year's wood. Dress them by taking off the under leaves: plant them three or four inches deep into beds of light rich earth, where they can be occasionally shaded and watered till rooted. The covering of them with bell glasses will greatly facilitate their rooting and growth, which is the most suitable way of effecting it, particularly for woody plants, and such as are not succulents.

The succulent plants are to be propagated agreeably to directions in April, page 367, No. 8.

3.—*Transplant Seedling Exoticks.*

Now transplant singly, into small pots, any seedling exoticks, which have been raised from seed this year; give them shade and water.

4.—*Budding.*

Any time this month, bud oranges, lemons, &c. The buds are to be taken from the shoots produced last autumn, which will now take freely, and handsome shoots will be formed the present year. For the method of budding, see Nursery, June, page 233.

5.—*Cape and other Green House Bulbs.*

The cape bulbs and tuberous rooted plants, whose leaves are now decayed, such as antholizas, gladioluses,

ixias, moreas, ornithagolums, &c. may be taken up, and transplanted immediately, or they may be wrapped in dry moss, and kept till September; but the cyclamens, &c. should be planted immediately after being taken up and cleaned, and all the autumnal flowering bulbs, as the Guernsey and Belladonna amaryllis; to keep these last out of the ground longer than the middle of July, would materially weaken them.

FOR JULY.

1.—*General Observations.*

When there is an over proportion of young fruit set on the limbs of orange, lemon, citron, and shaddock trees, thin them to a reasonable number on each, in proportion to its strength; they may be devested of all flowers produced afterwards.

The earth in the tops of the tubs, should be taken out frequently, and particularly at the time of fruiting, for two or three inches deep, and replaced with fresh compost, which would greatly encourage the growth both of the fruit and the trees.

Those plants which require larger pots, may now be shifted, agreeably to directions in March, No. 2.

2.—*Propagate Plants.*

Continue to propagate the various kinds of green house plants; by cuttings, layers, suckers, &c. as directed in the preceding months, most kinds will still succeed, by cuttings of the present year's wood, if carefully planted, duly shaded, and moderately watered, they will now take freely, in suitable earth, without the assistance of a

hot-bed. Let the cuttings be taken from healthy plants; they should be from four to eight inches in length, and strong shoots. The leaves should be stripped off more than half way up, and the cuttings planted about two-thirds of their length, in suitable earth, placing hand glasses over them, also shade and water them.

3.—*Transplanting Seedlings and Cuttings.*

Such seedlings of green house plants, as have been raised from the spring sowings, which are now three inches high, or more, should be transplanted into small pots separately, and immediately watered; they must be kept shaded, till well taken with the earth, and fully growing; after which screen them from the mid-day sun for the remainder of the season.

Many of the cuttings planted in spring, will be well rooted by this time, and may now be taken up with as much earth as possible about their roots, planted separately in pots, and shaded for eight or ten days from the mid-day sun; keep the earth in the pots moderately moist.

4.—*Gathering and Collecting Seeds.*

Collect all the different sorts of seeds, as they ripen; spread them upon papers in a dry shady place; and when sufficiently hardened, let them be carefully preserved in their capsules or pods, put up in paper bags, until the proper season for sowing them.

The seeds of geraniums, xeranthemums, and of any other quick growing green house plants, may now be sown, and if properly treated, will attain a considerable size before winter.

FOR AUGUST.

1.—*Propagating Plants,*

You may still continue to propagate the plants, by cuttings, layers, and suckers, as directed in former months

2.—*Budding Oranges, Lemons, &c.*

Any time this month oranges, lemons, citrons, &c. may be budded, the operation must be performed upon each tree, when it puts forth its first autumn shoots; some trees even of the same species will shoot earlier than others, and as soon as a few of them are grown to two or three inches in length, choose that time to bud them, as the sap is then in a fresh state of circulation, the bark of the stock will separate freely for the admission of the bud, and the necessary nourishment will be supplied.

The buds must be taken from shoots produced in the early part of the present season. The most suitable stocks are those raised from the kernels of either of the species. For the method of budding, See Nursery, page 233.

After budding, place them in the shade, for three or four weeks.

Cut off oranges, lemons, jasmins and other exoticks, which were inarched in April or May, provided they are sufficiently united.

3.—*Shifting and giving fresh Earth to the Plants.*

The critical period for the summer shifting into larger pots, such of the green house plants, as are too much con-

lined, is after they have perfected their spring or summer shoots, and before they begin to push their autumn growth; this is generally to be done in the first week of this month. Perform this operation as directed March, No. 2.

Such pots, in which the earth is hard or stiff, must have it loosened, taken out, and some compost added; pick off any decayed leaves, and trim disorderly branches, which will give a fresh appearance and beauty to the collection, as also promote the vigorous growth of the plants.

4.—*Water the Plants.*

Carefully attend to the watering of all the plants, giving it as often as necessary, and in proportion to the consumption of each; always administering it sparingly to the succulent kinds.

Water should be poured occasionally through the hose of a watering pot, over the branches of the shrubby kinds which will wash the dust off from the leaves, and refresh them greatly; this should be done in the evening, near sun-setting.

FOR SEPTEMBER.

Directions for the care of the plants.

As frosts frequently occur in the eastern states, from the middle to the latter end of this month, in particular places, during the night, the more tender plants must be taken into the house, before the cold begins to change their colour: the hardy sorts may be left out, as long as there is no danger of their being injured by frosts.

After they are taken into the house, the windows and doors are to be kept open night and day, as long as it can be done with safety, the plants will be nearly as advantageously circumstanced as if they were in the open air, even though there should be no frost; but should they remain out and a smart frost attack them, they will be materially injured.

As the period for the housing of the plants, in the middle states, is from the beginning to the middle of October, see next month for particulars.

In the middle states, continue your care of the plants, agreeably to former directions, only be particular in lessening the supply of water, in proportion to the moistness and coldness of the atmosphere, as more should not be administered than there is an absolute necessity for, at this season especially: and when the cold nights set in, the plants must be watered in the morning, for if given late in the afternoon, as in the preceding months, from the chill and the coldness of the nights, the colour of the foliage of the plants would change, from a fine green, to a yellowish hue, to the very great injury of the plants.

If any require to be shifted into larger pots or tubs, this may be done in the beginning of this month, but on no account defer it later, that the plants may have time to strike fresh roots before winter.

Such greenhouse plants, as, in consequence of their sickly state, were set in the open ground, in June, should now be taken up with balls of earth to them, trim off the roots which have extended too far, and planted in suitable sized pots, or tubs, after which water them and place them in the shade, till the time of taking them into the house.

All the young greenhouse plants, raised from seeds, slips, cuttings, or suckers, which are growing too close together in pots, &c. should, if well rooted, be transplanted, singly into pots, the early part of this month, be immediately watered, and placed in the shade for a week or two. But such as are not well rooted, and of course are

not advanced in top growth, should remain in their present pots, until next spring.

Any greenhouse plants propagated in the open ground during the course of the summer, should be taken up the first week of this month, with balls of earth, potted and treated as above.

The middle of this month plant the more tender bulbs, especially such of them as begin to produce fibres from their roots, such as Antholizas, Babianas, Cyanellas, Gladioluses, Ixias, Lachenalia, Lapeyrousias, Massonias, Melanthium, Oxalises, Tritonias, Watsonias, Walchendorfias; for if kept much longer out of the ground, after the roots begin to show, they would be materially injured.

The proper compost for the before-mentioned bulbs, is one part fresh loam, one part earth of rotten leaves, and a small part of sand.

Plant from one to five roots in each pot, a greater number if very small, cover them about an inch deep; the pots are then to be placed in the green house windows, to receive but very little water, both before and after the foliage appears above ground, for too much moisture would rot the bulbs.

Towards the end of the month, all the succulent and other very tender plants, should be taken into the green house, and placed in the front near the windows, where they may enjoy the full benefit of the air and sun. Collect your geraniums at the same time, and all other similar plants, bring them to the front of the green house, in order to have them convenient to be taken in.

FOR OCTOBER.

This month, in the middle states, will be the proper time to take the green house plants into their department. In the southern states they may be left out later, but the best criterion will be the commencement of cold nights, and the probability of frosts.

About the first of the month, take into the green house, all the more hardy species of the Cactuses, Aloes, Agaves, Cotyledons, Mesembryanthemums, &c. also other succulent and tender plants; place them in front, where they may have plenty of air in mild weather, give them water sparingly.

Several of the above are considered, generally, as hot house plants, but they can be preserved in perfection in a green house, and it may be advisable, where there are duplicates of any whose constitutions may be doubtful, to make the experiment of one of each, as several plants which are kept in a hot-house, would thrive better in a green house.

In the second week of the month, take in orange, lemon, citron, lime, and shadoch trees, geraniums, myrtles, hydrangeas, &c.

Before they are taken in, pick off all decayed leaves, prune decayed, ill formed or irregular shoots, and stir the earth in the tops of the tubs or pots.

Such as appear weakly should have some of the old earth removed, and supplied with compost.

After arranging them in the green house, in the best manner possible, give their heads a good watering, in or-

der to wash off the dust, and to increase the beauty of their foliage, afterwards wash the stage, benches, and floor.

The plants should now have the full enjoyment of the air, as much as possible, to prevent any mould, which the evaporation would otherwise occasion.

FOR NOVEMBER.

1.—*General Observations.*

In the beginning of this month, all the exöticks, which require some protection in winter, should be removed into their destined places. As the hydrangeas, Otaheite and China roses, pomegranate, single and double, double stocks and wall flowers, Belladonna and Guernsey lilies, and several other shrubby and herbaceous kinds, will seldom suffer before the middle of this month, therefore they may be left out, as long as they can be, with safety.

In mild weather, give the plants plenty of air every day. When rigorous frosts set in, recourse must be had to the mats and shutters, and sometimes fires must be occasionally made, at which time the upper part of the sashes may, for a short time each day, be let down, to allow the foul air to escape.

Occasional gentle waterings should be given to all the plants; to some three times a week, while the succulent plants require but a very little once a week; but you must in this be determined by circumstances.

Pick off all decayed leaves, and take them out of the house. Examine the tubs and pots frequently, and if the earth cakes or binds at the top, loosen it, and treat them as heretofore directed

Myrtles and other plants, which are in frames, must now be attended to. The frames, to the full height of the glasses, should be lined with horse-dung, and treated as directed for cucumber and melon vines, Kitchen Garden, page 9.

2.—Preserving Tender Bulbs, &c.

Some, who have not the convenience of a hot house, may be desirous of having some of the tender exotick bulbous and tuberous rooted plants, such as the arum, amomum, zinziber, or true ginger, crinum, pancratium, &c.; they may be taken up in the beginning of this month, carefully dried, as directed for tuberoses; pack them up in very dry sand, and preserve them entirely free from frost or moisture. They may be planted in pots in April, and exposed in a warm room to the sun: or they may be planted in the open ground, in the middle of May, although they will not flower quite so strong, as with the culture of the bark bed of the hot house.

FOR DECEMBER.

As the weather is generally very rigorous at this season, the green house will require more attention than common. In very cold and frosty weather, the windows and doors must be kept close, the shutters to the windows put up, and the awnings let down over them and the roof, at such times especially, when the sleet and snow descend, and the winds are sharp and cutting.

If, notwithstanding all this care, there is a danger of the frosts or damps effecting the plants, fire must be made in the stove. Be careful never to heat the air above 40

or 45 degrees of Fahrenheit's thermometer, as the plants require no more heat at this season, than just to preserve them from frost.

Be particular, every mild day, when the sun shines on the windows, to slide down the sashes, if it were only for a quarter or half an hour, in the middle of the day, to admit fresh air, and ventilate the house.

The plants must never be deprived of light, by keeping the shutters, &c. close, any longer than absolutely necessary; it would be far preferable to obtain the same preservation from frost, by heating the house.

For further particulars, see January and February.

The plants in garden frames, must be carefully attended to, as directed for cucumbers, &c. Kitchen Garden, page 9.

It is of course expected, that every green house, as well as hot house, will be provided with a Fahrenheit's thermometer.

HOT HOUSE,

FOR

JANUARY.

1.—*Hot House.*

A HOT HOUSE, stove or pinery, may be considered as similar, or occasionally, as one and the same, or separate departments, being repositories warmed by artificial heat of tanner's bark hot beds, and actual fire, for the reception, preservation, and culture of the tenderest class of exoticks, from the hottest parts of the world, requiring the constant protection here, the year round, of these conservatories, which also serve for occasionally forwarding various hardy plants to early perfection. Sometimes the same department serves as a general repository, under the denomination of a hot house or stove, both for pine apples, and all other tender exoticks, called hot house plants; and sometimes is designed principally as a pinery or pineapple stove, for the culture of pines chiefly; and some have distinct stoves for other tender exoticks, though nearly of the same temperature of heat; for departments of the same plan, dimensions, and construction, will suit almost the whole tribe of tender exoticks, exhibited under the arrangements of hot house plants aforesaid.

So that a hot house, stove, or pinery, is an oblong building, consisting wholly of upright glass sashes, fronting the south sun, and at both ends; also with sloping or inclined glasses at top, extending from the top of the front to a back wall northwards, twenty, fifty, or an hundred feet long, or more, by twelve or fifteen wide, six or eight feet high in front, and ten or twelve behind, or more, for lofty plants, having internal flues, funnels, or vents, for fire heat in winter, ranging along the inside of the walls, from a furnace or fire-place, without, in several returns over one another, in the back wall, the last terminating in a chimney at one end, and within side is a capacious pit, almost the whole length and width of the bottom space, by three feet depth, in which to make a substantial bark bed, to furnish a constant internal heat the year round, night and day, assisted also by fire heat in winter; for the plants, which are to be in this department, being from the hottest regions in different parts of the world, and consequently of a delicate temperature in this country, are not only unable to live here in the open air, but require continual protection under glass buildings; the internal air thereof must also be kept to a constant temperature, equal to that of their native country, which is effected by the joint assistance of actual fire and tanner's bark hot beds, the latter being supported all the year, and the fire heat only in winter, to assist the more moderate heat of the bark bed, which alone is not sufficient to maintain a requisite temperature in the winter season; therefore all this class of plants must always be fixed in pots, and retained constantly therein; such as the pine-apple plants, which must always be kept plunged in the bark beds, by which means we can raise that most delicious exotick fruit, the pine-apple, in the highest degree of perfection. Other plants may be placed in different parts of the house, where convenient, but not too near the flues, when there is fire heat.

So that by the assistance of a hot house, we may cultivate a collection of the tender and curious exoticks,

from the most distant hot parts of the world, in great perfection, and propagate their different species and varieties.

Besides, by the assistance of the artificial heat of stoves, pineries, hot houses, forcing houses, &c. we are enabled to forward the produce of many of our common hardy trees, shrubs, flowers, and plants, to a very early perfection, so as to obtain some of the choicest fruits and flowers, some months before their natural season; such as early cherries, strawberries, peaches, nectarines, apricots, grapes, figs, &c.; and of flowers, early hyacinths, narcissuses, jonquils, tulips, carnations, roses, &c.; also early cucumbers, kidney beans, peas, &c.

Likewise by the convenience of hot house and stove departments, having bark beds, we can raise many curious plants, both of the tender and hardy tribes, by seeds, cuttings, slips, &c. with greater expedition and effect, by plunging the pots in the bark bed; and there are some sorts, which without the assistance of a bark bed heat, in a stove or hot house, can hardly be propagated with any tolerable success. Seeds and cuttings of any sorts of curious plants, may be greatly forwarded in their rooting, by being sowed or planted in pots, and plunged in the bark bed; or any curious exoticks, newly planted in pots, being plunged into a bark bed, will quickly strike roots afresh; so that any kind of hot house, stove, or forcing house, constructed for fire or bark heat, either of moderate or large dimensions, is remarkably convenient, both for the culture of the most curious plants and fruits, as the pine-apple, as well as the numerous other tender exoticks, called hot house plants, and also for forwarding any of the more curious hardier kinds occasionally, both of the green house, and natural ground plants, fruits, flowers, &c.

There are several varieties of hot houses, or stoves, which notwithstanding may be reduced to two, the bark stove, and the dry stove, these stove departments should be of an oblong form, with a glass front, and roof, fully

exposed to the south sun; they may be twenty, fifty or an hundred feet long, or more; by fourteen to sixteen feet wide, from twelve to fifteen feet high, in the back wall, by six or eight feet in front, and furnished with flues, round the inside of the front and end walls, together with several returns, in the back wall, for fires. The whole roof sloping to the south, to be entirely of glass-work.

2.—*The Bark Stove.*

The bark stove is furnished with an internal pit, for the bark bed, and also with flues for fire heat, as above mentioned, and is the most universally used, as being the most eligible for the general culture of all kinds of the tenderest exotics, as well as for forcing several sorts of hardy plants, fruits, and flowers, to early perfection. The bark bed is designed to produce a constant, moderate, moist heat, all the year round; and the flues are used, occasionally, for fire heat, in winter, or during cold weather, to give such additional warmth to the internal air, as may be requisite, at that season. The bark bed is to be made as hereafter directed, and being productive of an uniform, moderate growing heat, it is peculiarly adapted for the reception and growth of the most tender exoticks, which require to be kept constantly plunged in their pots in it, such as the pine-apple, &c. in order to enjoy the benefit of that durable, moist bottom heat, about their roots, peculiar to bark beds only, the heat of which also escapes, and warms the air of the hot house, at all times, by its influence refreshing even the plants on the surrounding shelves; so that with the addition of fire heat, in winter, with a well graduated thermometer, fixed at a distance from the fire place, and as much in the shade as possible, the air of the stove may be so regulated, that hardly any exoticks, from the hottest countries in the world, whether woody, herbaceous, or succulent, but what may be cultivated to advantage, by placing them in such situations, as their temperaments may require.

In the arrangements of the plants in a stove, some re-

quire the bark bed, others succeed in any part of the house, and others, such as the succulents, require the dryest situation, near the flues; many of the more tender herbaceous, and shrubby plants, natives of the hottest regions, generally succeed best when plunged in the bark bed, but many others, thrive tolerably well in any part of the hot house.

In forming the cavity of the bark pit, first allow a space of two feet round the back, front, and both ends, for the convenience of walking, watering, and attending the plants; the pit then occupies the middle, the whole length, &c. of the house, the walks excepted; this pit is to be three feet deep, and surrounded with a nine inch brick wall, coping it all around, with a plate of timber, framed and mortised together, in order effectually to secure the brick-work, sometimes a four inch wall will do, as more room is gained in the pit, this will answer very well, but is not so permanent as the other.

The top of this pit should be exactly on a level, with the front wall, and the bottom free from any lodgement of water, at any season, for it would soak up through the bark, destroy its fermentation, and render it useless; therefore this must be taken into consideration, at the time of building the outside walls, where, if any dampness is apprehended, the front wall must be raised three feet above the level of the floor, if not two feet may be sufficient, and the pit may be sunk twelve inches, the bottom of it must be well paved with brick, or stone, to prevent the bark coming in contact with the earth, which would cause it to cool and rot suddenly.

The walks around the pit, must be neatly paved, either with brick, or cut stone, this being very necessary for the convenience of performing the occasional operations of culture, as well as to admit walking round to view the plants, and gather the produce of such as yield any; as the pine-apple, and such other plants, as are occasionally introduced for forcing their fruit, to early perfection.

The inside walls should be well plastered, the flues

must also be finished off, with the best plastering mortar, that can be made, in order to prevent any cracks, through which the smoke might pass, which cannot be too carefully guarded against, as it is extremely injurious to the plants, causing them to drop their leaves, and if continued long in the house, will totally destroy them.

All the wood-work, both within and without, should be painted white in oil colour, for the preservation of the building, and the inside walls and flues white-washed, so as to reflect the rays of light in every direction, which will be a very considerable advantage to the plants.

There may be ranges of narrow shelves, erected in the most convenient manner, for small pots, such as pots of strawberries, flowers, &c. for early forcing.

Outside, at the back of the stove, should be erected a neat shed, the whole length of the house, completely walled, which will contain the fuel, garden pots, &c. This shed will answer to defend the back wall of the stoves, to stow all garden utensils and tools in, when out of use, in order to preserve them from the injuries of the weather, and also to lay in quantities of compost, occasionally, to have it dried, ready for use, on the various occasions that occur, during winter and spring.

In the warmest of these stoves, should be placed the most tender exotick trees, and plants. These being natives of very warm countries should be plunged in the bark bed; and over the flues may be shelves, on which to place the various species of cactuses, euphorbiums, mesembryanthemums, and other very tender succulent plants, which require to be kept warm in winter; and as in this stove are placed the plants of the hottest parts of the East and West Indies, the heat should be kept up to that marked *Ananas* upon the botanical thermometers, and should never be suffered to be more than six or eight degrees cooler, at most, nor should the spirit be raised above ten degrees higher, in the thermometer, during the winter season, both which extremes will be equally injurious to the plants.

As some plants are destined to remain in the bark bed during the summer, such as the pine-apple, &c. these would be materially injured, if the glasses were not made to slide up and down, as well as to be taken off, for their accommodation; for if the glasses were to be kept on in the extreme heat, this, as well as their being entirely taken off at all times, and thereby exposed to heavy rains, the plants would be in danger of being lost, at any rate the fruit would be materially injured.

3.—*Nursery and Succession Stoves.*

Besides the main bark stove already described, it is very convenient to have two smaller, such as a nursery, and a succession stove, particularly where there are large collections, and more especially in the cultivation of pine-apples; one serving as a nursery-pit, in which to strike, and nurse the young crowns of the plants, as also the suckers of the old pines for propagation; the other as a succession depot, for receiving the year old plants, from the nursery, and forwarding them the second year, as succession plants, to supply the main stove, or fruiting house, every autumn, in the room of the old plants, which have done fruiting.

These smaller stove departments, are particularly useful, to raise and nurse the young plants of pines, until they arrive to the proper age and size to produce fruit, and then to be moved into the main stove, or fruiting house, which being thus annually supplied from these smaller stoves, with a succession of fruiting plants, without being incommoded with the rearing of young plants; especially as the fruiting plants often require a greater degree of heat than the succession pines, in order to improve or forward the growth of their fruit: and this increase of heat would be likely to injure the nursery plants, by forcing them beyond their strength and producing immature fruit.

The smaller succession stoves may be erected as appendages to the main house, one at each end and nearly

of the same construction, but of smaller dimensions every way.

By having a main stove, with two smaller ones adjoining, nearly of the plan above mentioned, you may always with greater certainty obtain a regular succession of fruiting pines, annually, in perfection.

A private passage, or small door, made from the back shed, into the hot house, close to one of the ends, will be found extremely useful in severe weather, for entering the house, to examine the temperature of the heat, or to perform any other necessary work therein.

4.—*The Dry Stove.*

This stove differs in no other instance from the bark stove, but in that it has not a bark pit; being furnished with flues similar to the other, it consequently produces a drier heat, being intended principally for the culture of very tender succulent exoticks, of parched soils. Some prefer this kind of stove, in order to deposit the succulent kinds therein, separate from plants which perspire more freely, lest the damp occasioned by such perspiration, and the more frequent watering necessary for these, should injure the succulents.

However, most of the tender succulent kinds are cultivated and preserved in the bark stove, placed on shelves, in dry situations, with good success.

In this kind of stove are erected moveable shelves, on frames or stands, above one another, on which to place the pots of the various kinds of plants to be preserved therein. The glass roofs of all these should made to slide up, as far as well may be, in case of necessity, i. e. in summer's mid-day sun.

5.—*Pine-Apples, &c.*

At this season the pinery departments, require close attendance, for some of the pines, towards the end of the month, will begin to show fruit, and your care is at no time so necessary, as when the fruit first appears, especially in supporting a proper bottom heat; for if the heat

of the bark bed is not kept up, at this time, the young fruit will receive such a check as will injure them materially; for notwithstanding the air of the house may be sufficiently warmed by the flues, yet these plants also constantly require a moderate warmth near their roots, especially when the fruit is young, without which the fruit will be both inferior, in size, and flavour, to what they otherwise might have been.

At this time, therefore, carefully examine, the heat of the bark bed, in which the pots of the pines are plunged, and if you find it very faint, take up all the pots, and let the bark be forked up to the bottom. But if in doing this you discover the heat to be much decayed, and the bark very small, or earthy: remove some of the wasted bark, from the top and sides, and then fill up with new bark, work in the old and new well together. When this is done, let the pots be replunged again to their rims, this will enliven the heat greatly, and, if done in a proper time, the young fruit will grow freely.

Let the fires be made very regularly, every evening and morning, these fires must be regulated by a thermometer, placed in the hot house, for if they are too strong, it would prove injurious, and they must not be too low.

Water should be given to the pine apple plants, at least once a week, always very moderately and let as little as possible, at this season, fall into the heart, or between the leaves of the pine plants.

All other tender exotick plants, in the hot house, or stove, should be supplied with water, as they require it.

The woody kinds will require it often, the succulent ones seldom, but very little water must be given them at a time.

Prepare some soft water, for the different plants, for which purpose you may have a tub in some convenient part of the house.

In the management of the plants in the bark bed, there must be a particular regard to the temperature of the bark, and the air of the houses that neither be too violent; and also to water them frequently, but sparingly,

especially the shrubby kinds; for being in a continual warmth, they perspire freely and if they have not a proper supply of moisture, in proportion to their necessities, their leaves will soon decay, and fall off.

In very severe weather, when it is necessary that strong fires be kept up, for any considerable length of time, so as to render the internal air dry, and parching, it will be adviseable to sprinkle the flues occasionally with water, and thereby to restore the air to such a state, as may be more suitable to the constitution of the plants.

Every plant, in the hot house, should be kept perfectly free from any dust or foulness; if any thing of this sort appears on their leaves, the larger leaved sorts may be washed by a sponge, and the others may have water sprinkled all over them occasionally.

6.—*Raising idney Beans.*

The early cream coloured dwarf, speckled dwarf, and yellow dwarf, are proper sorts for this purpose.

Fill some oblong narrow boxes, of about two feet, in length, and eight or nine inches deep, with rich, dry earth, and place them on the top of the surrounding wall; plant the beans triangular ways, along the middle, two or three inches asunder, the beans will soon sprout, and come up; after which sprinkle them with a little water, with which they must be supplied, two or three times a week; they will grow freely, and produce plentifully, in March and April.

7.—*Cucumbers in the Hot House.*

Cucumbers are sometimes raised early, in tolerable good perfection, in the hot house.

This is effected, by sowing the seed or planting young plants in large pots, or obling narrow boxes, which are to be placed in a convenient situation in the hot house, near the glasses, the boxes for this purpose may be the same length, and depth, as for the kidney beans. Fill the pots, or boxes, with rich earth, and place them up, near the

top glasses behind, or upon the top of the back or end flues, with the bottoms raised three inches, that the heat may transpire freely from the flues without injury to the plants.

When the runners of the plants have advanced to the outside of the pots or boxes, fix some laths to support the vines, to which the runners are to be fastened. Water them frequently, they will require a little every other day at least.

8.—*Early Strawberries.*

Strawberries may be brought early to perfection in the hot house, they may be introduced into it this month.

The scarlet and alpine are the kinds that succeed best for forcing; for this purpose they should be potted in September or October, as then directed.

Place the pots in the front near the glasses, water them frequently, but when they are in blossom, or setting young fruit, do not sprinkle it over the flowers or fruit, but on the earth in the pots.

9.—*Flowering Plants.*

Various kinds of flowering plants, to be forced into bloom, at an early season, may be now introduced into the hot house, such as the double flowering peach, honey suckles, &c. pots of pinks, carnations, sweet-williams, double daisies, double wall, and stockgilly flowers, &c. and pots, or glasses of any kind of bulbous roots, planted either in earth or water, with a variety of curious annual flowers.

TABLE I. *Hot House Trees, Shrubs and Succulent Plants.*

1 *Abroma angusta*, Maple leaved Abroma
2 *Abrus precatorus*, Jamaica Wild Liquorice
3 *Acalypha*
4 *Achania*, 2 kinds
5 *Achras*, 2 kinds
6 *Adansonia digitata*, Ethiopian sour Gourd
7 *Adelia*, 2 kinds
8 *Adenanthera pavonina*, Peacock Adenanthera
9 *Aegopricon*
10 *Aeschomene*, 3 kinds
11 *Agathophyllum*
12 *Agave*, 4 kinds
13 *Aleurites*
14 *Allamanda*

15 *Alstonia*
16 *Amyris Gileadensis*, Balm of Gilead
17 *Anarcadium occidentale*, Cashew Nut
18 *Andrachne*, 2 kinds
19 *Annona*, Custard Apple, 4 kinds
20 *Antidesma*
21 *Aquilaria ovaria*, Wood Aloe
22 *Arachis fruticosa*, Ground nut
23 *Areca oleracea*, Cabbage tree
Catechu, Betel nut
24 *Argythamnia*
25 *Aristolochia*
26 *Artocarpus Incisa*, Bread fruit tree
Integrifolia, Indian Jaca tree
27 *Arum*, 2 kinds
28 *Arundo Bambos*, Bamboo Cane
29 *Asclepias*, 3 kinds
30 *Assonia*
31 *Astronium*
32 *Atropa arborescens*, Tree atropa
33 *Averrhoa*, 2 kinds
34 *Bactris*, major and minor
35 *Banara*
36 *Banisteria*, 3 kinds
37 *Barleria*
38 *Bauhinia*, 4 kinds
39 *Bejonia*
40 *Bellonia*
41 *Berteria*
42 *Besleria*
43 *Bignonia*, Trumpet flower, 6 kinds
44 *Bixa Orellana*, Arnotto tree
45 *Blakea*
46 *Bocconia*, Tree Celandine
47 *Bœhmeria*
48 *Bœrhavia*
49 *Bombax*, Cotton tree, 4 kinds
50 *Bonnetia*
51 *Bontia Daphnoides*, Barbadoes Wild Olive
52 *Barassus*
53 *Bradleia*
54 *Bromelia Ananas*, Pine-apple, 9 kinds
55 *Brosimum*, 2 kinds
56 *Brucea*
57 *Brunfelsia*
58 *Bubroma*
59 *Buchnera*
60 *Bucida Buceras*, Olive Bark Tree
61 *Buddlea*
62 *Bumelia*
63 *Bursera*
64 *Cactus*, 8 kinds
65 *Cereus*, 13 kinds
66 *Opuntias*, 13 kinds
67 *Cadia purpurea*, Purple flowered Cadia
68 *Casalpina*, Flower fence, 5 kinds
69 *Calamus Rotang*, Rattan Cane, 2 kinds
70 *Calophyllum*
71 *Calyrtranthes*
72 *Camax Guianensis*, Guiana Camax
73 *Cambogia Gutta*, Gamboge tree
74 *Cameraria latifolia*, Bastard Manchineel
75 *Canarium*
76 *Canella alba*
77 *Capraria biflora*, Linear leaved Caper tree
78 *Capsicum*, Bird Pepper, 3 kinds
79 *Carica*, Papaw, 2 kinds
80 *Carolinea princeps*, Digitated Carolinea
81 *Caryoca*
82 *Caryophyllus aromaticus*, Clove tree
83 *Caryota*, Ceylon Palm, 2 kinds
84 *Cassia*, 5 kinds
85 *Cassuarina*
86 *Catesbeia spinosa*, Lily thorn
87 *Cecropia*
88 *Cedrela odorata*, Barbadoes Bastard Cedar
89 *Cedrota*
90 *Cerbera*, 3 kinds
91 *Cestrum*, 5 kinds
92 *Chionanthus Zeylanica*, Ceylon fringe tree
93 *Chrysopillum*, Star Apple, 2 kinds
94 *Cinchona*, Jesuit's Bark tree, 2 kinds
95 *Cytharexilum*, Fiddle Wood, 3 kinds
96 *Clitoria*
97 *Clusia*, Balsam tree, 3 kinds
98 *Chiytea*, Cascarilla
99 *Cocoloba*, 3 kinds
100 *Cocos nucifera*, Cocoa-nut tree, 3 kinds
101 *Coffea Arabica*, Coffee Tree, 2 kinds

102 *Comocladia*
103 *Connarus*
104 *Conocarpus erecta*, Jamaica Button tree
105 *Conyza odorata*, Sweet scented Flea Bane
106 *Copaifera officinalis*, Balsam Copaiva tree
107 *Corchorus*
108 *Cordia*, 3 kinds
109 *Corypha umbraculifera*, Great Fan Palm
110 *Cotyledon*
111 *Cratæva*, 2 kinds
112 *Crescentia Cujete*, Calabash tree, 2 kinds
113 *Croton lacciferum*, Gum Lac tree, 3 kinds
114 *Cupania*, 2 kinds
115 *Cycas*, Sago Palm
116 *Cytisus Cayenne*
117 *Dalbergia*
118 *Daphne*, 2 kinds
119 *Datura arborea*, Tree Thorn Apple
120 *Dillenia*, 2 kinds
121 *Dimorpha*, 2 kinds
122 *Dodonea*
123 *Dolichos urens*, Cow-itch Dolichos
124 *Doliocarpus major*, Sweet scented Doliocarpus
125 *Dracæna*, Dragon tree, 3 kinds
126 *Duranta*
127 *Etretia*
128 *Eleagonus*, Oleaster
129 *Eleis Guianesis*, Oily Palm Tree
130 *Eleocarpus*, 2 kinds
131 *Erithrinum Corallodendron*, Coral tree
132 *Eugenia*, 2 kinds
133 *Fagara*, Iron Wood, 2 kinds
134 *Fagræa Zeylanica*, Ceylon Fragræa
135 *Ficus Sycomoros*, Pharaoh's Fig, &c, 6 kinds
136 *Garcinia*, 2 kinds
137 *Gardenia*, 6 kinds
138 *Geoffroya*
139 *Gesneria*, 3 kinds
140 *Glabraria tersa*, Silk wood
141 *Glycine suaveolens*, Sweet scented Glycine
142 *Gossypium arboreum*, Tree Cotton, 2 kinds
143 *Gryas cauliflora*, Anchovy Pear,
144 *Guaiacum officinale*, Lignum vitæ
145 *Guiladina Bonduc*, The Nicker tree, 2 kinds
146 *Gustavia*
147 *Gymnanthes*, 2 kinds
148 *Hæmatoxylum Campechianum*, Logwood
149 *Hamelea*
150 *Hedysarum*, 5 kinds
151 *Helicteres*, Screw tree, 2 kinds
152 *Heliotropum*, 3 kinds
153 *Heliteria littoralis*, Looking-glass Plant
154 *Hernandia*, 2 kinds
155 *Hibiscus Rosa Sinensis*, China Rose Hibiscus, 6 kinds
156 *Hippomane*, 3 kinds
157 *Hura crepitans*, Sand box tree
158 *Hymenæa*, West Indian Locust tree
159 *Hyperanthera*
160 *Jaquinia*
161 *Jasminum undulatum*, &c. 4 kinds
162 *Jatropha Manshot*, Casava, *&c.* 4 kinds
163 *Ignatia*, St. Ignatius Bean tree
164 *Indigofera tinctoria*, Dyer's Indigo
Anil, Wild Indigo and 3 other kinds
165 *Justicia*, 4 kinds
166 *Ixora*, 3 kinds
167 *Kleinhovia*
168 *Langerstræmia*, 2 kinds
169 *Lantana*, 7 kinds
170 *Laurus cinnamon*, Cinnamon tree
Cassia, and 2 others
171 *Lausonia*
172 *Limonia* 3 kinds
173 *Liriodendron*, 3 kinds
174 *Lisianthus*, 4 kinds
175 *Lobelia*, 3 kinds
176 *Mahea Pirири*, Pipe Wood
177 *Magnolia Plumieri*, Plumier's Magnolia
178 *Malphigia*, Barbadoes Cherry, 4 kinds
179 *Mammea Americana*, Mammee Apple
180 *Mangofera Indica*, *&c.* Mango tree, 3 kinds

181 *Melaleuca Leucadendron*, Cajeput tree
182 *Melastoma*, Upwards of Sixty kinds
183 *Melia*, Bead Tree, 3 kinds
184 *Melochia odorata*, Sweet scented Melochia
185 *Mimosa sensitiva*, Sensitive Plant, upwards of 70 kinds, some very curious
186 *Morus tinctoria*, Fustick
187 *Munchhausia*
188 *Musa Paradisiaca*, Plantain tree
Sapientum, Banana tree
189 *Myristica aromatica*, True Nutmeg tree
190 *Myroxylon Peruiferum*, Balsam of Peru tree
191 *Myrtus Pimento*, Allspice tree, and 7 others
192 *Nerium Odorum*, Sweet scented Oleander
193 *Ocymum*, Sweet Basil, greater and less. Both these kinds may be sown in a hot-bed, and planted out in the middle states, in May, when they will come to perfection in the open ground.
194 *Olea cernua*, Madagascar Olive
195 *Parkinsonia Aculeata*, Prickly Parkinsonia
196 *Passiflora*, Passion flower, 20 kinds
197 *Pavetta, Arenosa*, Sand Plant
198 *Paullinia*, 2 kinds
199 *Pergularia*
200 *Petitia Domingensis*, St. Domingo Petitia
201 *Petrea volubilis*, Twining Petrea
202 *Phœnix dactylifera*, Date Palm tree
203 *Phyllanthus*
204 *Phytolacca dioicea*, Tree Phytolacca
205 *Pinus occidentalis*, West Indian Pine tree
206 *Piper nigrum*, Black Pepper
Betel, Betel do.
Longum, Long do.
Album, white do. and upwards of fifty other sorts
207 *Pisidia Erythrina*, Jamaica dogwood tree
208 *Pitcarnia*
209 *Plinia*
210 *Plumbago rosea*, Rose coloured Lead wort
211 *Plumeria*, 3 sorts
212 *Portlandia*, 2 sorts
213 *Psidium pomiferum*, Guava, 3 kinds
214 *Psychotria*
215 *Pterocapus Draco*, Dragon's Blood tree
Santalinus, Red Saunders
216 *Quassia amara*, Officinal Quassia
Simarauba, Simarauba Quassia
217 *Rauwolfia nitida*, Shining Rauwolfia
218 *Richeria*
219 *Rivina*, 2 kinds
220 *Robinia*
221 *Robinsonia*
222 *Rolandra*
223 *Ruellia*, 2 kinds
224 *Samara*
225 *Samyda*
226 *Santalum*, Yellow Saunders
227 *Sida*, 3 kinds
228 *Sideroxylon tomentosum*, Downy Ironwood
229 *Siphonia elastica*, India Rubber tree
230 *Solandra*
231 *Solanam*, Upwards of sixty kinds
232 *Spathelia*
233 *Spondias Mombin*, Spanish Plum
Myrobalansa, Yellow Plum
Dulcis, Sweet Plum
234 *Stychnos Nux vomica*
235 *Styrax Benzoin*
236 *Swartzia*
237 *Swietenia Mahagoni*, Mahogany
238 *Symplocos*
239 *Tabernæmontana*, 4 kinds
240 *Tamarindus Indica*, Tamarind
241 *Terminalia*
242 *Theobroma Cacao*, Chocolate nut tree
243 *Toluifera Balsamum*, Balsam Tolu
244 *Tournefortia*, 2 kinds
245 *Trichilia*, 2 kinds
246 *Triumfletta*, 2 kinds

247 *Turnera*
248 *Urena*, 2 kinds
249 *Varronia Currassovica*, Varronia of Currasso
250 *Vincarosea*, Red Madagascar Perriwinkle
251 *Waltheria*, 2 kinds
252 *Wintera Americana*, Winter's bark
253 *Winteriana Canella*, American Winteriana
254 *Xyllophylla*, 2 kinds
255 *Zamia*, 3 kinds

TABLE II. *Hot House Herbaceous Perennial Plants.*

1 *Aletris*, 3 kinds
2 *Allionia*
3 *Alstræmeria*
4 *Andropogon*, 2 kinds
5 *Barcaria*
6 *Basella*, Malabar Night Shade, 2 kinds
7 *Canna Indica*, Indian Reed, 7 kinds
8 *Dorstenia*
9 *Epidendrum*, 3 kinds
10 *Gomphrena perennis*, Perennial Globe Amarinth
11 *Gossipium Barbadense*, Barbadoes Cotton
12 *Hedychium coronarium*, Sweet scented garland flower
13 *Heydysarum vespertilionis*, Bat Winged Hedysarium
14 *Heliconia*, 4 kinds
15 *Kyllingia*
16 *Lobelia longiflora*, Long flowered Lobelia
17 *Marica*
18 *Phaseolus Caracalla*, Twisted flowered Kidney Bean
19 *Polypodium*, Polypody, 2 kinds
20 *Psychotria emetica*, True Ipecacuanha
21 *Saccharum officinale*. Sugar cane
22 *Senecio Pseudo Sinensis*, Chinese [Groundsel
23 *Sphæranthus*
24 *Strelitzia*
25 *Tradescantia*, Spider Wort, 2 kinds
26 *Witheringia*

TABLE III. *Hot house Bulbous and Tuberous Rooted Plants.*

Such of the following, as well as of the Green House bulbous and tuberous rooted plants, the foliage and rooted fibres of which decay, on the approach of winter, may then be taken up, carefully dried, and protected from damp and frost, till spring; when they must be planted in pots of suitable compost, to be plunged into a moderate hot bed to forward the vegetation of their roots. Some of these as the tuberose, jacobœalily, will bear to be kept in this state, till the first week in May. Other sorts naturally vegetate and keep their foliage during winter, which generally decays in the month of June or July, when their roots must be taken up, but these should be replanted, as soon after, as they show the least disposition to vegetate, by the emission of root fibres, or the swelling of the bulbs. Others again, as the Green House *amaryllis belladonna*, have strong, fleshy, root

fibres, which keep fresh during the apparent dormant state of the bulbs; these should not be taken up oftener than every second or third year, and then only to take off their off-sets, give them fresh compost, and immediately transplant them.

1 *Amaryllis formosissima*, Jacobœa Lily
Regina, Mexican do.
Aurea, Golden do. and 13 others
2 *Amomum Zinziber*, True ginger
Cardamomum, Cardamom
Galangal, and 4 others
3 *Arum*, 5 kinds
4 *Commelina tuberosa*
5 *Convolvulus Jalapii*, True Jalap
6 *Crinum*, 4 kinds
7 *Curcuma*, Turmeric, 2 kinds
8 *Cyclamen Indicum*
9 *Dioscorea sativa*
10 *Gloriosa superba*, Superb Lily
11 *Iris Martinicensis*, Martinico Iris
12 *Kæmpferia*, 2 kinds
13 *Limodorum*, 4 kinds
14 *Lita*, 2 kinds
15 *Maranta arundinacea*, Arrow root
16 *Marica*, 2 kinds
17 *Pancratium*, 6 kinds
17 *Polyanthus Tuberosa*, Tuberose

FOR FEBRUARY.

1.—*Insects which infest the Plants.*

1. The *brown turtle insect*. This insect is not only found on the pines and most other plants in hot houses, but also upon many in the green house.

2. The *white scaly coccus*. This is more pernicious to pines than the former.

3. The *white mealy crimsoned insect*, or *pine bug*. The two former are oviparous, but this last is viviparous; they are all very troublesome, and require great care to destroy them.

4. The *acarus or red spider*. This is a pest to almost every kind of plant; not only to plants kept under glasses, but to those in the open air.

The solution used for destroying chinzes, or bed bugs, if judiciously applied, would destroy all the foregoing insects; it is made as follows:

Receipt. Dissolve half an ounce of *hydrargyri oxymurias*, or corrosive sublimate, in a pint of alcohol, or common whiskey; if common proof sprits are used, more must be taken, in order to dissolve the whole; after it is completely dissolved, add to it four gallons of soft water.

If the plants are not very much infested with these insects, a suitable sponge firmly fastened to a stick, to be used as a brush, may be dipped in the mixture, and the plants liberally washed with it; but if the insects have spread over the plants, so as materially to injure them the sponge will not be sufficient; the plants themselves must then be entirely dipped in the solution. Although the pines which begin to show their fruit, cannot be operated on in this way, as it would prevent their fruit growing to the full size, yet the succession pines may be thus treated with advantage; the fruiting pines can only be well washed, as above directed.

Directions. The plants are first to have as many of the scaly insects as possible, brushed off the bottoms of their leaves, after which their leaves may be tied together, as they will be more manageable in this way, than with their leaves loose, and less liable to be damaged. The plants should then be taken out of the pots, their long loose roots cut off, also a few of the decayed leaves at bottom, and each plant washed as clean as possible.

The earth which comes out of the pine pots, together with the leaves and roots taken from the plants, should be removed to a considerable distance from the hot house; the pots, out of which the plants were taken, should not be used again for the purpose, unless they are first well scoured, and then put into boiling water.

The pine plants being thus prepared, put them into the solution of a proper temperature, in which they should remain, with every part covered, for about six minutes; then take them out, let their tops decline, in order to

drain the mixture from their centres; afterwards place these plants to dry, with their roots downwards, that the remainder of the mixture, which will be on them, may trickle down to the centre of each plant, whereby the insects concealed there, will be totally destroyed. The mixture will change the colour of the plants to a dull green, but soon after they are re-potted, they will regain their former verdure.

The solution must be uniformly kept to the degree of temperature, marked on the botanical thermometer *Ananas* heat, by adding a supply of the solution made hot for this purpose, as well as to supply the deficiency.

This work must be done in a mild, fine day, and as soon in the forenoon as convenient, that the plants may have time to dry, which they will do in a few hours, when they must undergo the operation a second time.

After the second dipping, a sponge should be used, to clean the leaves of the plants. They should then be set to dry, with their tops downwards, that the mixture may drain from every part, as it is necessary that the plant should be perfectly dry before it is again potted.

During the performance of the above operation, the hot house should be prepared for the reception of the plants, by changing the tan, and cleaning every part of the house. If this cannot be done in one day, the pine plants may with safety be set, separately, in a dry airy part of the house, so as not to touch each other.

After they are replaced, in their bed, shade the glasses in the middle of the day, when the weather is warm and clear, keeping up a considerable degree of heat, and as soon as they are perceived to grow, give them by degrees a greater quantity of air.

In case the heat of the tan should be too great, raise the pots.

Besides the different species of insects which infest the pine apple plant, there are others which are also troublesome in stoves; as,

5. The *Aphis*, roses and other plants are liable to be overrun with them. They are easily destroyed three ways—First, by fumigating the house with tobacco—Second, by dusting the plant with fine snuff—Third, by a decoction of tobacco.

6. The *Thrips* may be destroyed by the same methods as No. 5.

7. The *Wood-louse*. This insect may be destroyed by dusting the young seedlings with fine snuff.

8. The *Ant*. The method of extirpating these is by placing small pots, containing honey and water, in the same manner as for destroying wasps, &c.

2.—*Fumigating the House.*

This may be performed by a smoking pot, it should be done late in an afternoon, or evening, and proves most efficacious when the weather is moist and calm.

The most suitable seasons, are spring and autumn, when, if necessary it should be repeated every eight or ten days, till the effect is produced. But it should not be done when there is any ripe fruit in the house, as it would give it a smoky flavour.

The aphis is destroyed by a gentle fumigation, but the thrips, and brown turtle insect require a very strong smoke, and when the plants are greatly infested with them the fumigation should be repeated every three or four days.

3.—*Care of the Pine Apple Plants.*

As many of these will now set for fruiting, they must be moderately watered and the house kept as regularly warmed as possible. Therefore never let the temperature be lower than 55° nor higher than 62° of Fahrenheit's thermometer.

The fires are to be renewed every morning, and continued until the sun has warmed the house, but in very cold and dark weather, the fires must be kept up all day as well as during the night.

The bark bed must be again forked up, the first week of this month, to continue the brisk bottom heat. If the heat, in the bed of the succession pines has declined considerably, it must be treated in like manner.

4.—*Watering the Pine Apple Plants.*

The pine plants, in general, should have moderate refreshments of water, and be cautious to let as little as possible fall into the centre of the plants.

5.—*Care of the various Exoticks in the Hot House.*

A continuance of the same care, hitherto recommended, is still necessary.

6.—*Kidney Beans.*

Plant more kidney beans, and observe directions in January, page 391. Frequently refresh these plants with water.

7.—*Of Roses and other Plants for early Forcing.*

Roses, pinks, carnations, &c. or pots of bulbous roots, may be brought into the hot house, for an early bloom, which will require attention to former directions.

8.—*Cucumbers.*

Cucumbers may now be sown in the hot house and treated as in January.

9.—*Early Strawberries.*

Pots of the scarlet and alpine strawberries, may be introduced into the hot house, and managed as directed in last month.

10.—*Admit fresh air into the Department.*

Fresh air may be admitted into this department, at all times, when the sun shines warm, and the air is quite calm and clear, when the glasses may be opened a little, particularly the roof lights, in the warmest time of the day; shutting all close, if the weather changes cold and cloudy.

FOR MARCH.

1.—*Fruiting Pines.*

Pine plants depend greatly on a due proportion of air being admitted. In doing this, the utmost care is necessary, for the want of it occasions long leaves and weak stems, and if too much air at any time is admitted, or at improper seasons, the plants will be injured, and become yellow and sickly.

Even in the depth of winter, every favourable opportunity should be embraced, to allow the foul air to escape, and the house supplied with fresh, by letting down the glasses a little way, though but for a few minutes, in very mild weather.

Continue a regular degree of heat, as directed last month.

Provide a quantity of new bark from the tanners, the beginning of this month. The middle sized bark is to be chosen, and such as has been at least three weeks out of the tan vats, this tan, if very wet, should be first spread thin in an open sunny place, for two or three days to dry, and then thrown into an heap. The quantity of bark necessary to provide at this time, should be one third of what the bark pit will contain. Towards the latter end of the month, take out a part of the old tan, fork up the pit, and renew it, as directed in January, page 390.

2.—*Succession Pines.*

About the middle of the month, the plants are to be shifted; in doing this, shake off the whole ball of earth,

and cut off all the roots that are of a black colour, carefully preserving only such as are white and strong; then put the plants, intended to fruit next season, in pots of eight or ten inches diameter at the top, and seven deep, with fresh mould.

Renew the bed with fresh tan, keep the house warm till the tan begins to heat, then give the plants a sprinkling of water, and when the weather grows warmer, admit more air.

3.—*Shrubby and Succulent Hot House Plants.*

These will still require the same treatment, as directed in last month.

4.—*Propagation of Exoticks.*

Sow such seeds of rare plants, as you are able to procure; some will vegetate freely, many kinds will not grow for three months or more, and others not for a year after sowing; patience must therefore be exercised.

Many kinds may now be propagated by suckers, cuttings, and layers; by these means, such as are scarce, may be obtained.

5.—*Raising early Flowers, Fruit, &c.*

Any desirable plants may still be introduced, to forward an early bloom; such as pinks, carnations, roses, hydrangeas, &c.

Pots of Strawberries and vines to continue a supply of fruit, as in February and March.

Also kidney beans.

In hot houses, where grape vines are trained in, from plants growing on the outside, and conducted up under the glasses, they will be well advanced in young shoots having fruit, which should be carefully trained in regular order, and all the improper and superfluous growths cut away.

FOR APRIL.

1.—*Pine Apples.*

THE pines that are likely to produce the best fruit, can now be distinguished; a small iron rod, made with a sharp angular point, may be thrust down the centre of each sucker, arising from these, which being turned two or three times round will drill out its heart, and prevent its growth. Supply the plants sufficiently with water, and the fruit will grow large. But this method is to be practised with but few of the plants.

2.—*Watering the Pines.*

As dews are more common in the West Indies than rains, raise artificial dews in the hot house, by watering the walks and flues frequently in dry weather. However, regular waterings must be given, but little at a time, just to keep the earth moderately moist.

3.—*Support regular Heat.*

Keep up the requisite heat in the hot house by moderate evening fires, and a constant good heat in the bark beds. The fruiting plants in particular will require this.

4.—*Succession Pines.*

The succession pines, and also the suckers of last season, should be shifted into larger pots, if not done in March, which see.

5.—*Admitting Air.*

Air should be now admitted in proportion to the increasing heat of the season; the roof glasses must therefore be slid down, as well as the front glasses; seventy degrees will be a good medium for sun heat; when it rises above that, give abundance of air.

6.—*Treatment of other Stove Plants.*

The woody kinds will now require frequent and gentle waterings, the herbaceous occasionally, but the succulent sorts only a little now and then.

7.—*Propagating Stove Exoticks.*

Propagate by cuttings, layers, suckers, or seeds, the various plants of this department.

8.—*Fruiting, Flowering, and Esculent Plants.*

Pay due attention to the regular watering of the strawberries, kidney beans, cucumbers, and flowers, now forcing in the stove.

Continue to keep the grape vines, which are now fruiting, free from all unnecessary shoots.

FOR MAY.

1.—*General Observations.*

FIRE heat should now be totally discontinued, except in the more northern parts of the eastern states; but still continue a moderate heat in the bark beds, for the pine apples.

2.—*Pine Apples.*

During the summer season frequent and moderate waterings should be given to pine apple plants.

When the weather becomes very hot, the front lights must be kept open night and day; but the roof lights closed every night, particularly in cloudy weather, to preserve the bark pits from heavy rains: they must be opened again early in the morning, especially in warm weather.

3.—*Care of Exoticks.*

Continue to give plenty of air to all the plants in the hot house, keep them clear from decayed leaves, and supply them duly with proper waterings.

4.—*Propagating the Plants.*

You may still continue to propagate such plants as are desired, by cuttings, layers, suckers, and seeds. See March and April.

Any time in this month, you may plant cuttings or slips of cactuses, aloes agaves, sedums, mesembryanthemums, and other succulent plants; laying them in a dry shady place a week or ten days, that the wounded parts may dry.

5.—*Bringing out the Hot House Plants.*

About the fifteenth of this month, remove the hardier sorts of hot house plants, into the green house, and about the twenty-fifth of the month, they will be in a good condition to be removed into the open air. At this time, the more tender kinds may be removed into the green house; give them as much air as possible, to harden them for their removal into the open air, which may be done about the beginning of June.

FOR JUNE.

1.—*Tender Exoticks.*

The more tender kinds of exoticks, which could not with safety be brought out into the open air the latter end of last month, should now be placed where intended to remain during summer; the shrubby kinds will require an abundance of water at this season, but it must be administered with a sparing hand to all the succulents.

2.—*Pine Apples.*

The pine apple plants must now have an abundance of air night and day, the front lights must be kept open, also the roof lights, except during heavy rains, when these last must be closed, to preserve the bark pit from too much wet. The plants will likewise require frequent refreshments of water.

When the pine apples are advancing towards maturity, give them but little water, as too much would injure the flavour of the fruit.

The succession pines must also have an abundance of air, and a sufficiency of water.

3.—*Propagating Hot House Plants.*

Continue to propagate the various kinds of hot house plants by cuttings, layers, off-sets, suckers, and seeds.

All the succulent tribe may now be easily propagated by suckers, slips, cuttings, &c. laying them in a shady place, when taken off, for a week or ten days before they are planted.

FOR JULY.

1.—*Care of Fruiting Pines.*

As the pine apples come to maturity, care should be taken to cut them off, before they become too ripe.

2.—*Compost for Pines.*

Twelve months previous to the time of the compost being wanted for use, pare off the sward or turf of a pasture not more than two inches deep, where the soil is a strong rich loam, and carry it to some convenient place, to be piled together for rotting; turn it over once a month at least. If a quantity of sheep's dung or pidgeon's dung could be collected fresh, and mixed therewith in the first instance, it would greatly improve it.

1st. Having the above prepared, and made fine with a spade, but not screened, to three barrow fulls of it. add one of vegetable mould, of decayed oak leaves, and half a barrow of coarse sand, observing, however, that if the soil, from which the turf had been taken, inclined, any way to sand, that should be now omitted. This makes a proper compost for *crowns*, *suckers*, and *young plants*.

2d. To make a compost for *fruiting pines*, use three barrows of the above reduced sward, two of vegetable mould, one of coarse sand, and one fourth of a barrow of soot.

The composts should be put together some months before wanted, and very frequently turned during that time, that the different mixtures may be thoroughly incorpo-

rated. For vegetable mould compost, see Shrubbery, page 254.

Keep the different heaps of compost, at all times, free from weeds: round them up in rainy seasons, and spread them to the frost and sun in fine weather.

3.—*Raising Plants by Crowns and Suckers.*

When the pine apple is quite yellow, the crown may be planted, in two or three days after it is taken off; but if the fruit, or its top, be green, then let the crown remain six or seven days in a shady place, that the wound may dry.

In taking off a sucker, move it backwards and forwards two or three times, in a side direction, and it will come out with its bottom entire; which should be cut smooth. Place these in a shady part of the hot house.

Before the crowns are planted, their lower leaves should be cut off close with a pair of scissors, which will allow the roots to be produced with more facility.

The proper size of the pots, to plant the crowns and suckers in, is six inches diameter at the top, and five and a half inches deep.

4.—*Shifting the Succession Pines.*

The pine plants, which are to fruit next year, should be shifted either in the last week of this month or the first in August, into full sized pots, of about eleven or twelve inches diameter at top, and ten deep; by doing this so early in the year, they will have time to strike good roots before spring, for otherwise they seldom produce large fruit. Turn the plant out of the old pot with the ball entire, and place it immediately into the new; fill it up with more of the compost, and let it be covered therewith an inch deep.

5.—*Propagation, &c. of Hot House Plants.*

The propagation and care of these various exoticks, is the same now, as directed in May and June, which see.

FOR AUGUST.

1.—*General Observations.*

The care of the fruiting pines, and succession plants, &c. is the same as last month, which see.

Besides watering the pine plants in the common way, water also the walks and flues of the hot house occasionally: this should always be done late in the evening, and the glasses ought to be immediately closed. The great heat of the house will exhale the moisture, and raise a kind of artificial dew, which will stand in drops on the glasses; the leaves of the pine being succulent, will imbibe the watery particles, and be greatly benefitted thereby.

2.—*Shifting the Exoticks, &c.*

The several kinds of tender exoticks, that require it, should now be shifted into larger pots, in order to establish strong and fresh roots before winter; place them in the shade immediately after till they begin to grow; attend regularly to the watering of the plants at this season; keep all of them free from decayed leaves, weeds, &c. and continue to propagate the various kinds, by suckers, layers, or cuttings.

3.—*Labelling the Plants.*

Label all your plants with small cedar slips, having the generifick and specifick name of the plant on each label.

FOR SEPTEMBER.

1.—*General Observations.*

If the roof lights had, in the course of the summer, been taken off any of the hot house departments, they should be re-placed early in this month, and all the wood and glass work put in the best possible repair.

Give a complete and thorough cleaning, painting, and white washing, to every part of the house; and if infested with insects, fumigate it effectually. Wash the inside entirely with a very strong solution of corrosive sublimate, clean every particle of old bark out of the pots, carry it off to a considerable distance, and re-place it with fresh tan, the plants remaining in this department, while this is performing, should be thoroughly washed and cleaned, before they are re-placed.

This cleansing, fumigating, &c. will destroy most, if not all, of the lurking insects, which have taken shelter in different parts of the house.

2.—*Taking in the Plants.*

The more tender kinds of hot house exoticks, which are arranged out of doors, should, in the middle states, be taken into the green house, about the tenth of this month, and the others successively, so that the whole collection may be in by the eighteenth or twentieth, or a few days earlier, should the weather happen to be cold. Here they are to remain, closing the windows at night, giving them all the air possible in mild days, till towards the end of the month or sooner, if you have the hot house ready for their reception.

When the plants are placed in order in their winter quarters give them plenty of air every favourable day, by sliding open the upright glasses, and also the roof lights if necessary; for the fresh bottom heat will give new action to the plants, and render an abundance of air highly requisite; observe, however, to close the lights early every evening, and to open them as early in the morning, as the thermometer rises to sixty degrees, Fahrenheit.

3.—*Succession Pines, Crowns, and Suckers.*

The crowns, and suckers, of this year's production, may be placed in a dung hot-bed, and managed as directed for cucumbers, Kitchen Garden, January, page 9, &c. When the nights begin to grow cold, cover the glasses, carefully with mats, and be very cautious not to keep your lights close in sunny days.

Your succession pines, which are removed into the hot house, should have plenty of air, at this season, which, with a moderate and steady bottom heat, will keep them in a growing and prosperous state.

4.—*Procuring fresh Tan.*

Procure a quantity of fresh tan, for the purpose of making new beds, in the next month. When the tan is brought home, it will be proper to throw it up in a heap to drain and ferment, for ten or twelve days before it is put into the pits. But if it is very wet, as is commonly the case, when thrown up out of the tan vats, it should be spread thinly, for two or three days, that the sun and air may exhale the superabundant moisture, for if used too wet, it would be a long time before it would acquire a sufficient degree of heat.

5.—*Prepare Compost.*

Prepare the compost proper for pines, described in July, page 408.

For most of the shrubs and herbaceous plants of the hot house, prepare equal parts of good light garden earth, and mellow surface loam, from a rich pasture ground.

with the turf, add to these a fourth of very well rotted hot-bed dung; let the whole be duly incorporated, and exposed to the weather, several months, before it is used, turning the heap over every four or five weeks.

FOR OCTOBER.

1.—*General Observations.*

The pines, and all the other exoticks, must have regular care, and attendance; let water be given once or twice a week, to some, oftener to others; be careful not to give too much at a time, as it would not only prove prejudicial to many plants, but destroy the heat of the bark bed.

Admit fresh air into the house, every calm, or warm day, especially when the sun shines, by sliding open some of the glasses, from nine or ten o'clock, till three or four, always observing to close the house in the afternoon, while the air is warm to supercede the necessity of fire, as long as possible.

The advantages of keeping the house as cool as may be, consistent with the safety of the plants, during this, and the next month, are very great, the plants being thereby gradually hardened, and rendered capable of bearing the changes of the winter season, better than if they had been made tender, by too much heat.

When the leaves of the plants decay, they should be picked off, and the house kept clear from cobwebs, and every other kind of filth.

2.—*Care of Pine Apple Plants.*

In the early part of this month, the plants which are to produce fruit next season, should be removed out of the necessary stove, &c. into the fruiting house; but previous to this, the old bark must be all taken out of the pit,

and filled with fresh tan, previously prepared, as directed last month, page 412.

When the bed begins to heat, and the warmth has reached the surface, bring in the fruiting plants, and plunge them in the bark bed to their rims, examine the bed frequently, and if the heat should be too violent, draw the pots up halfway, or quite out of the tan, as you judge most suitable, to prevent its burning the roots of the plants, and plunge them again, as soon as it can be done with safety.

Admit air every mild warm day, and give gentle waterings.

As long as the temperature of the house can be kept at 52° of Fahrenheit, by carefully closing the house early in the evening, fires will not be necessary, and the plants will thrive better, than to have recourse to them, but in cold cloudy weather if the thermometer sinks below 52°, fire must be resorted to.

3.—*Succession Pines.*

The succession house should now be replenished from the pits, &c. with the pines, next in growth to the fruiting plants, taken out of it, also the younger plants, in the next advanced stage, should be placed in their regular winter departments.

The bark bed for these must be renewed, and treated as before directed.

4.—*Protecting Hot House Plants in Garden Frames.*

There are few tropical plants, but may be preserved during the winter, while in a small state, in garden frames, well constructed, and managed, it being an excellent auxiliary for a hot house, where the stock of plants is numerous.

A frame for this purpose should be constructed, about nine or ten feet long, four to five feet wide, three feet and an half high in front, and five in the back part, with sashes well glazed, and fitted as close and neat as possible, so as to slide up and down freely. This frame should be placed in a dry and well sheltered situation, exposed

fully to the south, where it may have the benefit of the sun, the whole day. It should be filled with fresh prepared tan, to the depth of three feet, when settled, and the pots plunged therein to their rims, the smallest sized plants in front and the largest towards the back part.

The frames should be entirely surrounded, with a large quantity of the fallen leaves of trees, to its full height, and as they sink, add more, always keeping them full, up to the top of the frame, on every side, the leaves will soon heat, and cause the tan to ferment, and between both, a fine glow of warmth will be kept up in the frame, during the whole winter, this with a suitable covering of boards, and mats at night, and in severe weather, will preserve the most tender plants.

Linings of horse dung, may be substituted instead of leaves, but the latter is preferable, on account of its slow, steady, and continued heat.

5.—Oak Leaves used as a Substitute for Tan.

As oak leaves abound in almost every part of the United States, they may be used, in forcing pits of every kind, instead of tanners' bark, their heat being constant, regular, and continuing for a long time, often for an entire year: whereas bark generally turns cold, soon after its violent heat has passed off, which requires it to be forked up frequently, in order to revive the heat.

The sooner the leaves are raked up, after they fall from the trees, the better, as the power of fermentation, will naturally decrease, during the time they are exposed to the weather.

When raked up, they should immediately be carried under cover and thrown into an heap to settle and ferment. Tread them well, and if you find they are dry sprinkle them over with water. The heap should be at least six or seven feet in depth, and covered with old mats, both to promote a fermentation and to keep them from being blown away. Let them remain in this state, for four or five weeks, by which time they will be properly prepared for the pits, and will not settle down

much more. When they are put into the pits, if they appear dry, water them a little, tread them well down in layers, of about six inches, till the pits are full, cover them over with tan, about two inches thick and tread the surface smooth and even. On this set the pots of pines, &c. filling up the spaces between them with tan. After this, the leaves require no further trouble, the whole season through, as they will retain a constant and regular heat, for twelve months, without either stirring or turning.

Leaves mixed with stable dung, make excellent hot-beds which preserve their heat much longer than when made of dung only.

FOR NOVEMBER.

1.—*General Observations.*

The tan pits should be renewed by this time, and all the pots of pine apples; and also all the other tender exoticks, should be correctly arranged in their places.

As the weather will now be increasingly cold, the fires must be carefully attended to, and the equilibrium of 52° or 54° of Fahrenheit, regularly kept up, to prevent the plants receiving any injury, from being over forced, or checked by cold.

The art of managing tender exoticks, consists principally in keeping the air of the hot house in a proper temperature of heat, in carefully proportioning the quantity of water to the different natures of the plants, in judiciously admitting a sufficiency of air, at all suitable opportunities, and in preserving the bark pits at all times, in a proper degree of fermentation.

Pick off all decayed leaves, and take them out of the house, clean the leaves, and stems from all kinds of

foulness, wash off and destroy all insects, frequently stir the surface of the earth in the pots, and keep all the house clean and in neat rrder.

2.—Care of the Plants.

The young pines, or other plants in the succession departments, must be carefully attended to, agreeably to former directions; those in garden frames must have the outside lining kept to the full height of the frame all around, to preserve it in a regular and constant temperature; the glasses must be carefully covered every night, and also in the day time during severe frost; give as much light as possible, and seize every favourable opportunity, to give the plants as much air, as can be done with safety; watering will seldom be requisite, as the bottom steam will supply a considerable portion of moisture. Other attention is also necessary, such as taking off all decayed leaves, &c.

The more succulent kinds will not keep as well in such a garden frame, as in a dry stove, or on shelves in the hot house.

The garden pits, erected with brick, and furnished with flues, in which tender exoticks are placed, must also have a lining of hot dung round them, to their full height, to protect them from frost, and moderate fires must be made every evening; and in other respects treated as hot beds.

FOR DECEMBER.

1.—General Observations.

As the frost is very severe in this month, the fire heat must be kept up, in proportion to the severity of the

weather, which must be regulated by the thermometer, never allowing the air of the house to be colder than 52° Fahrenheit, nor higher by fire heat, than about 62°, as the plants must now be forced into a fresh state of vegetation.

The fires must be kept up till 11 or 12 o'clock at night, when fresh fuel must be supplied, in extreme severe weather, and they must be renewed very early in the morning. The shutters should also be closed, and the mats let down, especially at nights.

The bark bed must be attended to, and a regular heat kept up.

The plants will require to be occasionally watered, but the cactus, melocactus, or Turk's cap, with many others of the most succulent kinds, should have no water given them at this season, but in cases of great necesssity.

In a fine, calm, sunny day, admit some fresh air into the house, by sliding down some of the glasses, in the middle of the day even if but for half an hour.

Pick off decayed leaves, clean the plants from insects and filth, and sprinkle the flues and walks occasionally with water.

2.—*Strawberries, &c.*

Towards the latter end of the month, strawberries, and various kinds of flowering plants in pots, may be introduced into the house,

Sow cucumber seed, and plant kidney beans, as directed in January.

Tubs of bearing grape vines for early fruiting, may also be introduced, if none are trained from the outside. Such vines as are planted in the front of the house, and trained in under the lights, should have their stems, which are exposed to the weather, wrapped round with hay or straw, also their roots covered with long litter, otherwise they would be injuried by this forcing.

GRAPE VINE.

1.—*Remarks, &c. on the Grape Vine.*

ALTHOUGH it is not intended, to give directions for planting and managing a vineyard in this small treatise, yet a list of the different sorts of grapes, cultivated in Europe, with the method of planting and pruning, may be a proper appendage to the work.

First. They are divided into three tables or classes; 1, Those which ripen earliest; 2, those which succeed them; 3, the later kinds.

TABLE I.

1 The White Frontenac, or Muscat Blanc
2 The Blue or Violet Frontenac
3 The White Sweet Water
4 The Black Sweet Water
5 The Brick Grape
6 The White Muscadine
7 The Munier
8 The Small Black Cluster
9 The early black July Grape, or Morillon Noir
10 The White Grape, from Teneriffe
11 The Auvernat Noir, from Orleans, or true Burgundy Grape.

TABLE II.

12 The Aleppo Grape
13 The Grizzly Frontenac
14 The Black or Purple Frontenac, or Black Constantia Grape
15 The Red Frontenac, or Muscat Rouge
16 The Black Hamburg
17 The Red Hamburg
18 The Malvoise
19 The Genuine Tokay
20 The Lombardy Grape
21 The Smyrna Grape
22 The Alicant or Black Spanish Grape
23 The Black Muscadine
24 The Royal Muscadine
25 The Malmsey Muscadine
26 The Claret Grape
27 The Large Black Cluster, or Lisbon Grape
28 The White Morillon
29 Cat's Grape
30 St. Peter's Grape
31 Black Palestine Grape
32 The white Parsley leaved Grape or Ciotat
33 The Black Lisbon Grape
34 The Greek Grape
35 The White Corinth
36 The White Muscat, of Lunel
37 The Red Chasselas

TABLE III.

38 The White Muscat of Alexandria, or Alexandrian Frontenac
39 The Red Muscat of Alexandria
40 The Black Damascus
41 The Black Tripoli Grape
42 The Red Syracuse Grape
43 Le Cœur Grape, or Morocco Grape
44 The Golden Gallician
45 The Black Muscadel
46 The Red Muscadel
47 The White Grape from Alcobaca
48 The White Hamburg, or Portugal Grape
49 The Syrian Grape
50 The Black Raisin Grape
51 The White Raisin Grape
52 The Damson Grape
53 The Cornichon Grape
54 The New Muscat, of Jerusalem
55 The Black Prince

American Species of Vine.

The following species of the vine, are indigenous in America.

1 *Vitis Sylvestris*, Common Bunch Grape
2 *Vitis vulpina*, Fox Grape
3 *Vitis taurina*, Bull or Bullet Grape
4 *Vitis serotina*, or Winter Grape

2.—*General Propagation.*

The vine may be propagated several ways, by seeds, layers, cuttings, grafting, inoculating, and inarching, but as the method by cuttings is the best and most easy, that alone will be here noticed.

3.—*Propagation by Cuttings.*

Plants raised by cuttings are superior both in point of vigour, and durability, than most other methods.

The particulars necessary to be observed, in selecting the cuttings for planting, are these.

1st, The eye should be large and prominent. 2d. The shoots, moderately strong, round, and short jointed. 3d. The texture of the wood should be close, solid, and compact, with very little pith; there can therefore be but one prime cutting from each shoot, as the upper parts cannot be so well ripened as the lower.

In the proper pruning season, which in the middle states, is the latter end of February, or first week in March, much earlier in the southern states, and very little later in the eastern: take your cuttings, from the old vines, near to where they were produced; cut off the lower end of each in a sloping manner, half an inch below

a bud, and the upper end, in like manner, half an inch above one, having the slope on the opposite side of the bud, leave the cutting from twelve to sixteen inches long; but twelve is sufficient if short jointed, and furnished with at least four or five good buds.

When the cuttings are thus prepared, they should be laid in trenches, close to each other, in some dry part of the garden, and covered with earth to within two inches of their tops, where they are to remain, till you are ready to plant them; covering them in frosty weather, with some loose dry litter, which is to be taken off every mild day, that they may be the better inured to the open air.

4.—*Method of Planting.*

Take up your cuttings carefully, without injuring the buds, and place them in a bucket of dung water, about six inches deep; then make a hole with a spade, about a foot deep, into which put one strong cutting, placing it a little sloping, and so deep, that the second bud, from the top, may be just on a level with the general surface; then fill the hole with earth, pressing it gently with your feet to the cutting, drawing the loose earth round, so as to cover the second bud, before noticed, half an inch deep, which bud, so protected, will frequently make the most vigorous shoots, and often succeed, when the top bud exposed to the weather, will not.

The best time for planting cuttings, in the middle states is March, in the eastern April, in the southern states, where there is little or no frost, November is more eligible.

5.—*Pruning Grape Vines to be fastened to Stakes.*

In the middle states, the last week of February, will be the right time to prune grape vines unless it should happen to be extremely severe, in which case the pruning may be deferred a few days longer, but on no account later than the first week in March; which latter period will be a suitable time to commence this work in

the eastern states; the more to the southward, the earlier this ought to be done, for if deferred until the sap begins to rise, the vines will bleed copiously from the wound, and the shoots be thereby deprived of their proper nourishment. It is to be remarked that, the sap begins to ascend six weeks or more, before the buds expand into leaves.

Such plants, as are but one year old, from the cuttings, must be cut down to one or two good buds each, according to their strength, always cutting, about an inch above the bud, in a sloping manner, on the opposite side thereto; observing that the lowermost bud, next the old wood, is never reckoned among the good ones. Should any of these young plants, have made more than one shoot, last season, they must be deprived of all, except the strongest and best placed, which prune as above directed, by cutting them off, as close as possible, to the old wood; and should there be any of the old wood above the shoot left, cut it off close thereto; in order that the bark may grow over it, and the stem become whole and sound.

The two year old plants, must be treated in a similar manner, with this difference, that you may leave two good buds to each, in order to form as many strong shoots for the next season.

The three year old plants, must be headed down, to two good buds, leaving not more than two shoots to each plant, which will produce fruit for the ensuing season: and these if the plants are in good health will yield fruit very handsomely that year.

The fourth year of a plant, leave it three of the best shoots, heading it down to two good buds each, and cut off the extra branches close to where they were produced, also any decayed wood, as well as the spurs, or stumps, occasioned by last year's pruning; by which treatment all the parts will become covered over with bark, and the stock continued in health and vigour.

As your vines encrease in age and strength, you may leave from four to eight shoots on a plant, in proportion to its strength, each headed down from two to four or five good buds, always leaving the greatest number of buds on the strongest shoots.

When a vine is extremely vigorous, and well furnished with shoots, you may leave one or two of its shoots, three or four feet long, which will bear an abundance of fruit; but the others must be headed down, to two or three buds each, in order that they may produce good wood, for the ensuing year's bearing, and not much fruit; for those which you headed so high, must, in the next pruning, be entirely cut out, close to where they were produced.

Having finished your pruning, give each plant at least one good firm stake, to support the young shoots, and should it be vigorous and have many shoots, it may, require a second, or even a third.

As the young shoots, of the last summer's growth, are the only bearing wood; that is they produce new shoots, which bear fruit the same season; therefore, in order to have a regular supply of grapes, the plants must be so treated, as to produce an annual succession of new wood.

6.—*Pruning of Vines against Espaliers, &c.*

In order to have well formed espaliers, and wall vines, &c. the two first good shoots, produced by the plant, must be trained horizontally, one to each side within a foot of the ground, and continue them in a horizontal direction, from year to year, to any extent desired.

The first year these must only be deprived of the decayed wood, on the extremities, and of any of the secondary shoots, proceeding from the axillas of the leaves, unless they have reached the desired extent; the second year, they will produce shoots from the joints, which may be trained, at the distance of eight inches from each other, along the espalier; the third year, head each of these down to one good bud, and train them as

before directed; the fourth, and every succeeding year, make choice of the strongest shoots, say every third one, and head them down, to from ten to twenty buds each, according to the strength of the mother plant, and soundness of the wood, but never leave wood that is not sound, for such seldom bears fruit. The other shoots are to he headed down, to one or two good buds each, which are to produce branches for the next year's bearing, as those left to bear this season, must be cut down next in order to produce a succession of young wood; and so continue their management from year to year.

Some prefer to train their vines (in large cities) to a single stem, for fifteen or twenty feet high, and after that to prune them as before directed, this is in order to allow the fruit the advantage of a freer circulation of air, and in the hot summers of the middle states, by being thus raised above the enclosing walls; the fruit is much larger, than in the common mode of training, and not so liable to be wilted or shrivelled, by the reflected heat from brick walls.

Old vines, which have been neglected, and have a great quantity of naked wood, should be cut down to the ground, and they will not fail to produce plenty of young wood, which may be trained to suit, but they will bear no fruit that year. Or cut out every other branch, leaving the old ones to produce fruit that season, but these must be cut down next year, in order to produce young wood, and a well furnished vine.

SOUTHERN STATES.

In North Carolina, and some others of the southern states, they have grape vines indigenous, which are considered equal in flavour, &c. to those cultivated in Europe, which though not noticed here, deserve a place in the catalogue of grape vines.

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